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CONTENTS AND SUBJECT INDEX

The Amebiasis Problem. Charles F. Craig, M.D., New Orleans....1615
Parenteral Liver Therapy in the Treatment of Pernicious Anemia. M. B. Strauss, M.D., and W. B. Castle, M.D., Boston.....1620
Treatment of Pernicious Anemia with Horse Liver Extract. Oscar Richter, M.D.; Arthur E. Meyer, Ph.D., and Andrew C. Ivy, M.D., Chicago 1623
Motor Paralysis of Individual Nerves Following Administration of Prophylactic Serums. Alfred Gordon, M.D., Philadelphia...1625
Age Factor in Active Immunization of Infants Against Diphtheria. Julius Blum, M.D., New York.1627
Diagnostic Significance of Hematemesis. Andrew B. Rivers, M.D., and Dwight L. Wilbur, M.D., Rochester, Minn.....1629
Incidence of Syphilis in Private Practice. Edgar F. Kiser, M.D., and C. B. Bohner, M.D., Indianapolis 1631
The Dietary Treatment of Psoriasis. Jay F. Schamberg, M.D., Philadelphia 1633
Cesarean Uterine Sutures Passed from the Vagina. Harry S. Fist, M.D., Los Angeles.....1635
Need of Larger Doses of Viosterol in Severe Rickets (Osteomalacia Type). Mark Jampolis, M.D., and Sol Londe, M.D., Chicago....1637

CLINICAL NOTES, SUGGESTIONS AND NEW INSTRUMENTS

Xerophthalmia. W. T. Davis, M.D., Washington, D. C.....1640
Improved Operative Proctoscope. Wells Teachnor, M.D., Columbus, Ohio 1641
A Combined Pocket Skin-Pencil and Ruler. Howard B. Sprague, M.D., Boston 1642
Schistosoma Haematobium in Illinois. S. J. Sullivan, M.D., Chicago.1642
The Prevention and Treatment of Abdominal Wall Excoriation in Gastric and Intestinal Fistulas by Copper Bronzing Powder. W. F. Cunningham, M.D., New York.1643
Head Rest for Exposure of the Cerebellum. Percival Bailey, M.D., Chicago 1643

SPECIAL ARTICLE

Diphtheria Mortality in 1931....1644

COUNCIL ON PHYSICAL THERAPY

The Treatment of Skin Diseases by Physical Therapeutic Methods. G. M. MacKee, M.D., New York.1646

COUNCIL ON PHARMACY AND CHEMISTRY 1654

COMMITTEE ON FOODS 1655

EDITORIALS

Influence of Heredity on Cancer.1656
Nicotine and the Liver.....1657
The Calcium in Cheese.....1657

CURRENT COMMENT

Activity and Development.....1658
Purulent Exudates Versus Bacteriophage 1658
Newspapers and Headlines.....1658

(Subject Index on next page)

ASSOCIATION NEWS 1659

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The letters used to explain in which department the matter indexed appears are as follows: The Star (*) indicates an Original Article; "ab," abstract; "E," Editorial; "C," Correspondence; "MI," Medicolegal; "ME," Medical Economics.

A. M. A. Annual Congress on Medical Education 1659
Board of Trustees, portraits....1610
President Cary's portrait....1609
Sections, Chairmen, portraits....1612; 1614
special railroad rates to New Orleans..1659
Abdomen tumor, massive....ab-1696
wall excoriations, prevention....*1643
Academy, medical, of Rome....1671
Achylia, gastric, histamine in....ab-1692
Actinomycosis of face and neck, radium for ab-1696
Agnosia, partial 1680
Alcoholism, increase of nervous diseases.1670
Amebiasis problem *1615
Anemia, histamine treatment in....ab-1692
Anemia, Pernicious, horse liver extract for. *1623
intramuscular liver therapy....ab-1690
intravenous liver treatment....ab-1691
parenteral liver therapy....*1620
Anesthesia, ether convulsions....ab-1690
chloroform, giving, in definite percentage dosage ab-1690
resuscitation during ab-1690
Arthritis, hemophilic ab-1687
of spine ab-1689
rheumatoid, bacteriology ab-1687
Association News 1659

Bacteriophage vs. purulent exudates....E-1658
Bile, "white" ab-1694
Bile Duct, cystic dilatation....ab-1690
Blood circulation after endurance test..ab-1691
pressure, high, thiocyanate therapy...ab-1688
subtypes M, N and MN....ab-1696
sugar after giving dextrose rectally.ab-1688
transfusion service 1669
Boggs, Thomas R., awarded decoration....1665
Book Notices 1681
Books Received....Adv. page 44
Breast cancer, irradiation in 1680
Brown, Samuel A., resigns....1667
Bureau of Investigation....1676

Cancer, influence of heredity....E-1656
committee appointed, Wisconsin....1668
Cerebellum, head rest for exposure of....*1643
Cesarean Section, uterine sutures passed from vagina *1635
Cheese, calcium in E-1657
Children, defective, Odessa Padologic Institute 1673
Cold, common, vaccine in prevention...ab-1685
Colon irrigations C-1677
megacolon, treatment ab-1686
Columbia University, medical gifts to....1667
Committee on Foods....1655
Copper bronzing powder for abdominal wall excoriation *1643
prescribing in hematinic capsule....1679
Corporations, do they practice medicine?.ab-1659
practice of medicine by....ab-1659
Correspondence 1677
Council on Medical Education....1681
Council on Pharmacy and Chemistry....1654
Council on Physical Therapy....1646

Deaths 1674
Dermatitis herpetiformis Duhring-Brocq, etiology ab-1695
Dextrose by rectum vs. blood sugar...ab-1688
Diabetes in children, insulin treatment..ab-1696
Diphtheria, immunization 1680
immunization of infants, age factor in.*1627
immunization program, Michigan....1666
Diphtheria mortality in large cities of U. S.*1644
none, in Palo Alto....1664
Dogs, young, disease, transmissible to man.1670
Drafts, localized, vasomotor reactions to.ab-1685
Duodenum, adenomatous papilloma....ab-1690

Emedy, C. R., impostor BI-1676
Encephalomyelitis, acute disseminated, in children ab-1692
Endamoeba histolytica *1615
Endocrine imbalance in 8 month old infant.1680
Endocrinology, symposium on....1665
Ergotamine tartrate, indications....1680
Erysipelas, milk injections for....ab-1691
Eyes, functional activity and morphologic development E-1658

"Fever" conference, second....1667
Fistula, preventing abdominal wall excoriation in *1643
Food handlers to be examined....1664
Foreign Letters 1669

Gangrene, gas, infection, in large cities..ab-1694
gas, resulting from hypodermic....ab-1693
Gastroduodenostomy, infrapapillary ab-1687
Goethe as an anatomist....1670
Goiter, exophthalmic, iodine dosage in.ab-1688
Growth, excess, in child....1678

Head rest for exposure of cerebellum....*1643
Headache, lumbar puncture 1680
pituitary 1679
Health of school children and economic distress 1671
public, in Soviet Union in 1932....1673
Heart, mensuration ab-1685
output in recumbent position....1679
Hematemesis, diagnostic significance....*1629
Hemipelvectomy ab-1687
Hemophilia, detection of transmitters....1679
Herpes zoster, antistaphylococcal vaccine for 1670
Hospitals, army, physical therapy in...ab-1662
for profit; discharge of patient prematurely MI-1683
municipal, development 1669
state, raises farm products, Missouri...1666

Illustration, department of, formed at Indiana 1665
Indian Reservation, health board for....1666
Influenza, tuberculosis after 1678
Insulin therapy in malnutrition....ab-1688
International Congress of Microbiology...1671

Knee, demonstrating meniscus in roentgenogram ab-1695
Koch's discovery of tubercle bacillus....1670

Leg ulcer, Nussbaum's method for....ab-1694
Liver, nicotine and E-1657
Lungs, x-ray localization of foreign bodies. ab-1686
Lymphogranulomatosis, eosinophilia in..ab-1695

Malpractice: roentgenograms; failure to take MI-1683
Marriages 1674
Medicolegal 1683
Meetings, Coming Meetings 1684

New and Nonofficial Remedies....1654
News 1664
Newspapers and headlines....E-1658
Nicotine and liver E-1657
Nitrites, effect on gastro-intestinal tract.ab-1688
Nutrition, state institutes, The Ukraine...1672

Occupational Therapy ab-1663
Odessa Pedologic Institute 1673
Organs, functional activity and morphologic development E-1658
Osteitis fibrosa vs. irradiation of parathyroids ab-1695
Otosclerosis, indications for therapeutic abortion 1678

Pan American Medical Association....1664
Pancreas, cancer, pseudosplenomegalic form ab-1692
Parathyroids, irradiation vs. calcium metabolism ab-1695
Pelvis, fractures ab-1686
Pemphigus, etiology ab-1695
Peptic Ulcer, aluminum hydroxide treatment ab-1689
bleeding gastric and duodenal....ab-1686
hematemesis *1629
infrapapillary gastroduodenostomy....ab-1687
Peritonitis, fetal ab-1692
Physical Therapy departments, adequate records ab-1663
in army hospitals ab-1662
Pituitary headache 1679
Pneumococcus, effects of sodium dehydrocholate on ab-1689
Pneumonia of children, epidemiologic factors ab-1685
Potassium cyanide poisoning, sodium thiosulphate for ab-1694
Pregnancy, diagnosis, von Pall's test..ab-1695
intra-uterine and extra-uterine bigeminal ab-1693
Prescription in secret codes....1667
Proctoscope, operative *1641
Psoriasis, dietary treatment....*1633
Psychoses, increase 1670
Pulse complex, basal....ab-1687
Pylorus, ulcer, in nursling....ab-1693

Queries and Minor Notes....1678

Race progress be rationalized?....1669
Radio Program 1659
Radium needles, small, versus radon implants ab-1686
new source, Canada....1668
Reading, partial agnosia....1680
Rectum cancer, emergency method for excision ab-1695
Reflexes, viscerocardiac ab-1688
Reticulocytes, rôle ab-1696
Rickets, severe, larger doses of viosterol in *1637

Scarlet Fever, ear complications....1672
immunization, motor paralysis after...*1625
Schistosoma haematobium: sporadic case in Illinois *1642
Silicon as industrial hazard....1680
Skin diseases, physical therapeutic methods for *1646
disorders, localization ab-1696
pencil and ruler combined....*1642
sensitization after wound treatment..ab-1694
Smallpox, vaccination 1680
Society Proceedings 1684
Spinal Puncture, headache....1680
Spine, fractures ab-1686
State Board Examinations....1681
Stomach, achlorhydria ab-1691
secretion, effect of section of vagus on.ab-1688
volvulus, intermittent ab-1693
Syphilis, incidence, in private practice..*1631
Izraelson's reaction ab-1696
Müller's simplified flocculation test..ab-1696

Thorax, mensuration of chest....ab-1685
Tonics and Sedatives....Adv. page 38
Tubercle Bacillus, 50th anniversary of discovery 1670
Tuberculosis after influenza....1678
Typhoid, immunization of contacts....1679

Urine, acetonuria with meningeal symptom in children ab-1693
Urticaria ab-1692

Varicose Veins, effects of exertion on.ab-1693
Ventricular Fibrillation, transient....ab-1688

Workmen, hygienic regulations affecting..1672

Xerophthalmia: report of case....*1640

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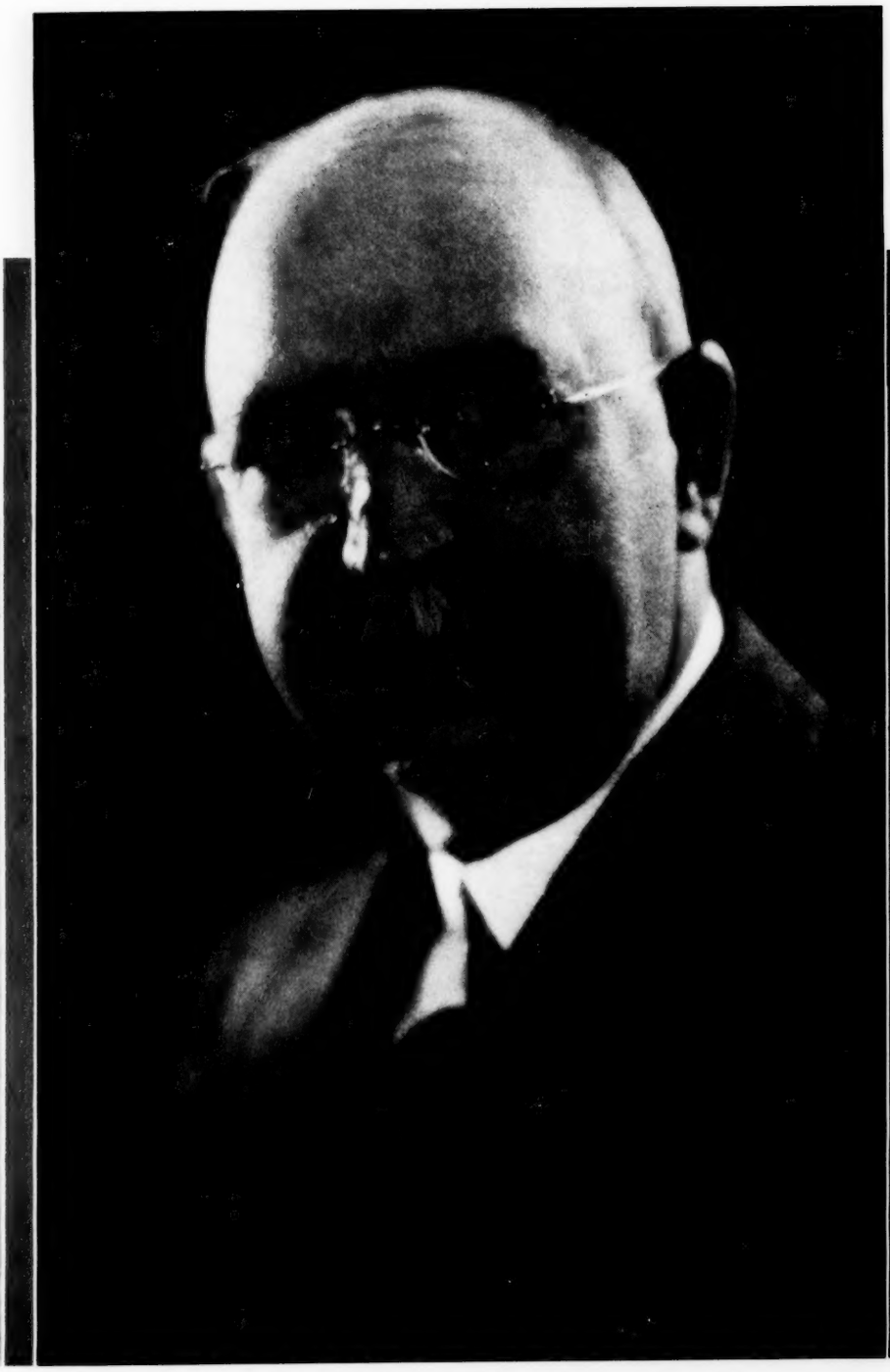

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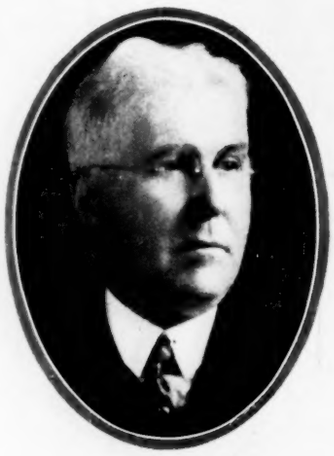

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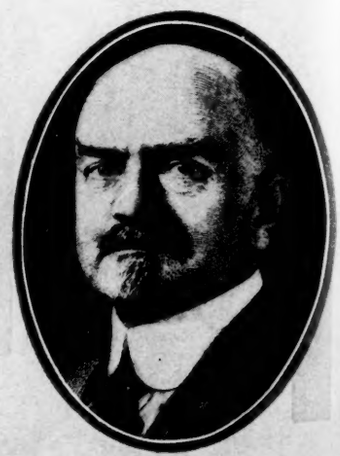

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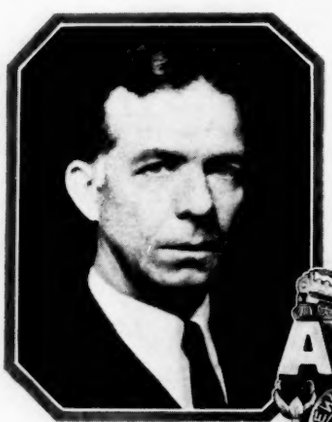

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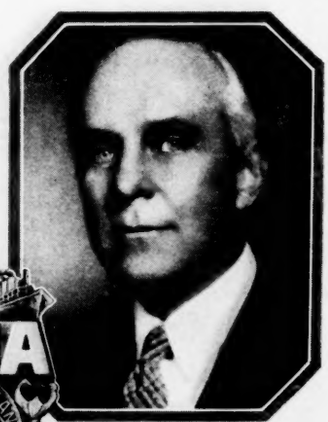

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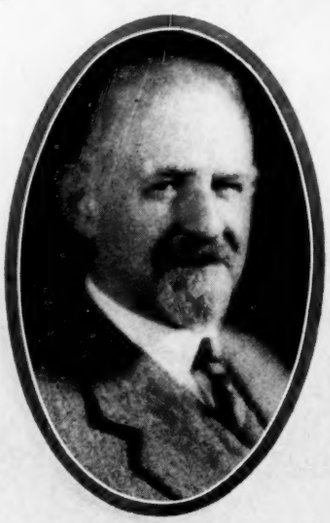

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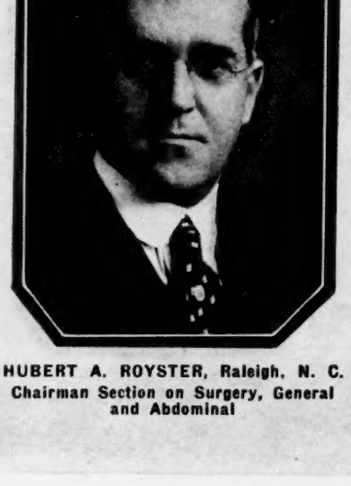

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THE AMEBIASIS PROBLEM

CHARLES F. CRAIG, M.D.

NEW ORLEANS

The problem of amebiasis as it relates to the health of the people of the United States is a problem that is of increasing importance and one that is not, as yet, thoroughly understood by the majority of the medical profession. Twenty-one years ago (1911), Sistrunk [1] reported an analysis of 145 patients observed at the Mayo Clinic, of whom 25 were infected with Endamoeba histolytica, and called attention to the fact that 12 of these patients had never resided elsewhere than in the Northwestern states. His paper was followed by those of Giffin,[2] in 1913, and of Sanford,[3] in 1916, calling attention to the prevalence of infection with this parasite in people residing in the northern portion of the United States. These papers failed to awaken the interest in the subject which they deserved and it has not been until the last decade that the medical profession in this country has taken seriously the question of the prevalence of infection with Endamoeba histolytica and its effect on the health of the general population. In fact, even today there appears to be a tendency among the profession to make light of this infection, although the evidence as to its importance, from a public health standpoint, is overwhelming when carefully considered.

It is my purpose in this discussion of the subject to show that there is an amebiasis problem in this country and that it is possible to solve it at least in part from the standpoint of prophylaxis. In order to demonstrate that such a public health problem exists, it is necessary to consider the incidence of infection with Endamoeba histolytica in the people of the United States and the pathogenicity of this parasite as shown by the production of symptoms and lesions of the infection in those harboring the organism.

THE NATURE OF AMEBIASIS

The first essential in the consideration of the subject is a definition of the term "amebiasis." By "amebiasis" I understand all infections of man with Endamoeba histolytica without regard to the presence or absence of symptoms of such infection. In the past, the terms "amebiasis" and "amebic dysentery" have been regarded as synonymous by most writers of monographs and textbooks, and it is surprising to see in some of the most recent works, even those on tropical medicine, the entire subject of amebiasis considered under the heading "amebic dysentery." Such a conception of amebiasis is obsolete and until the profession understands that amebic dysentery is simply one stage of amebiasis, little can be hoped for from the standpoint of prophylaxis and treatment. Despite all the data that have accumulated demonstrating that amebiasis, including amebic dysentery, is world-wide in distribution, the majority of the medical profession still considers amebic dysentery a tropical disease and amebiasis as synonymous with amebic dysentery and amebiasis as stated elsewhere,[4] "It is most unfortunate that the term 'amebic dysentery' should have become, in the minds of most medical men, a synonym of amebiasis, or amebic infection; for while dysenteric symptoms are quite characteristic of the serious cases of infection with Endamoeba histolytica, the vast majority of such infections are not accompanied by dysenteric symptoms but by much milder symptoms usually attributed to some other factor and not recognized as the result of infection with this parasite."

That this more modern conception of the nature of amebiasis is receiving recognition is evidenced by the recommendations of the Committee on Nomenclature of the American Society of Tropical Medicine to the National Conference on the Nomenclature of Disease. This committee recommended that the following nomenclature be adopted for health returns under the general heading "amebiasis." (Endamoeba histolytica) Amebic dysentery; amebic enteritis; amebic abscess of the liver; amebic hepatitis; and amebic carrier-state. So much, at least, has been gained as the result of recent studies of this subject.

INCIDENCE OF INFECTION

The incidence of infection with Endamoeba histolytica in the United States varies greatly in different localities, as reported in careful surveys made by competent authorities. An incidence as low as 0.2 per cent has been reported in 522 individuals studied by Andrews and Paulson [5] in Baltimore, and as high as 53.2 per cent in 154 students at the University of California, by Kofoid and Swezy.[6] It is difficult to compare the figures obtained in surveys on the incidence of this parasite by different investigators, as so many factors enter into the subject. The methods of examination, the accuracy of the observer, the number of specimens of feces examined, whether the examinations are made on the inhabitants of rural or urban communities, the inmates of institutions and hospitals or home dwellers, and the social and economic condition of those examined

The Mayo Foundation Lecture, Rochester, Minn., March 29, 1932.

1. Sistrunk, W. E.: Intestinal Parasites Found in Individuals Residing in the Northwest, J. A. M. A. **57**: 1507 (Nov. 4) 1911.
2. Giffin, H. Z.: Clinical Notes on Patients from the Middle Northwest Infected with Entamebas, J. A. M. A. **61**: 675 (Aug. 30) 1913.
3. Sanford, A. H.: The Geographic Distribution of Amebiasis, J. A. M. A. **67**: 1923 (Dec. 23) 1916.
4. Craig, C. F.: The Symptomatology of Infection with Endameba Histolytica in Carriers, J. A. M. A. **88**: 19 (Jan. 1) 1927.
5. Andrews, Justin, and Paulson, Moses: Am. J. M. Sc. **181**: 102 (Jan.) 1931.
6. Kofoid, C. A., and Swezy, Olive: Am. J. Trop. Med. **1**: 41 (Jan.) 1921.

all influence the results of such surveys; but the following figures regarding incidence are given as showing the prevalence of Endamoeba histolytica reported in recent surveys:

In 1923, Boeck and Stiles [7] examined 8,029 people in the United States, of whom 333, or 4.1 per cent, were infected with Endamoeba histolytica. In most of these cases only one examination was made and that a simple microscopic one. It is well known that only about one third of the infections are discovered with one microscopic examination of the feces, and in a series of 505 individuals in whom six examinations were made per capita Boeck found 15 per cent infected with this parasite. In 1926, Wight [8] examined 1,341 individuals in the United States and found 92 infections, of 6.8 per cent. Here, again, in most of the individuals only one examination was made. In 1930, Faust,[9] using a single examination, found 92 of 460 individuals, or 20 per cent, in Wise County, Va., infected with Endamoeba histolytica and states that, prorated to a six examination basis, the incidence of infections with this parasite would have been 45.5 per cent. Meleney,[10] in rural communities in Tennessee examined 4,987 individuals and found 861 infected with Endamoeba histolytica, or 17.3 per cent. In New Orleans Faust [11] examined 1,100 individuals and found about 13.7 per cent infected. In this survey, attention was paid to the incidence in various classes of individuals and Faust found in the Charity Hospital at New Orleans 27.2 per cent of infections with this parasite in patients in the male medical wards, 13.1 per cent in patients in the female medical wards, 25.2 per cent in patients of the obstetric service, 8.27 per cent in medical students, and 9.05 per cent in private pay patients.

In a survey of a small rural community in Tennessee, Milam and Meleney [12] examined 374 individuals and found 38 per cent infected with Endamoeba histolytica.

While on duty at the Army Medical School in Washington, I examined 189 students, all of them professional men from various parts of the United States, and found 24, or 12.7 per cent, infected with Endamoeba histolytica. In making these examinations I employed cultural and sedimentation methods, so that it is probable that practically all the infections were discovered. This survey is significant as illustrating the percentage of infections with this parasite among professional men, largely physicians, who had never been out of the United States.

It is interesting to compare the results of the surveys of Sistrunk, Giffin and Sanford at the Mayo Clinic, already mentioned, with the results obtained in more recent surveys. Sistrunk records the presence of Endamoeba histolytica in 25 of 145 patients examined, or 17.2 per cent; Giffin found 79 infections with this parasite in 1,700 patients examined, or 4.5 per cent; and Sanford records the presence of the organism in 1,135 of 5,000 patients examined, or 22.5 per cent. The variation between the smallest figure, 4.5 per cent and the largest, 22.5 per cent, is noticeable and illustrates how surveys, even in the same institution, may vary according to the many factors influencing them, some of which have been mentioned.

7. Boeck, W. C., and Stiles, C. W.: Bull. 133, Hyg. Lab., U. S. P. H. S., 1923.
8. Wight, Toynbee: U. S. Vet. Bur. M. Bull. **2**: 557 (June) 1926.
9. Faust, E. C.: Am. J. Hyg. **11**: 371 (March) 1930.
10. Meleney, H. E.: J. Parasitol. **16**: 146 (March) 1930.
11. Faust, E. C.: Am. J. Trop. Med. **11**:231 (May) 1931.
12. Milam, D. F., and Meleney, H. E.: Am. J. Hyg. **14**: 325 (Sept.) 1931.

Up to the present time no nation-wide survey of the incidence of Endamoeba histolytica among home dwellers has been made, and it is evident that until this is done there will be no accurate statistics regarding the infection of the general population of the United States. However, enough has been done to warrant the statement that it is conservative to estimate that between 5 and 10 per cent of the people of this country harbor Endamoeba histolytica. Taking the population of the country at 120,000,000, this means that between 6,000,000 and 12,000,000 people are infected with this parasite in the United States. If we are very conservative, the evidence is certainly sufficient to warrant us in stating that 1 per cent of the population, or 1,200,000, are harboring Endamoeba histolytica in this country, and that, from the standpoint of incidence of a parasite alone, amebiasis is a problem worthy of consideration.

PATHOGENICITY OF ENDAMOEBA HISTOLYTICA

In order to demonstrate that amebiasis is a public health problem in this country, it is necessary, in addition to establishing its great incidence, to show that Endamoeba histolytica is a pathogenic parasite causing pathologic conditions in man and that in the infected individuals lesions and symptoms are produced which are caused by its presence.

It would hardly appear to be necessary at this time to summarize the evidence which establishes the fact that Endamoeba histolytica is a pathogenic parasite of man and that it produces lesions and symptoms which in many cases lead to the death of the human host. As Magath and Brown [13] have well said:

> At this time it is quite unnecessary to defend the pathogenic rôle of Endamoeba histolytica. The pathologic lesions that it produces have been so well described and so frequently encountered as not to leave a shadow of a doubt but that the organism can produce serious injury to tissue. Indeed, Koch's postulates have been so repeatedly confirmed that an adequate defense cannot be offered for this parasite's harmlessness.

The accumulated evidence of years as to the specific lesions produced by this parasite in man, and the results of innumerable experiments on susceptible animals and those by Walker and Sellards on human volunteers, incontrovertibly prove that Endamoeba histolytica is a pathogenic parasite, while the clinical picture of that stage of its invasion of the human intestine known as amebic dysentery is characteristic. No well informed physician today doubts that Endamoeba histolytica is the cause of amebic dysentery, but it is well known that this stage of amebiasis, while it does occur, is comparatively rare in the United States, especially in the northern part of this country, and if this were the only clinical manifestation of the infection amebiasis would not constitute a major public health problem. The question at issue is, Does Endamoeba histolytica actually invade the intestinal tissue and produce lesions and symptomatology in the 5 to 10 per cent of the population of this country that are infected or does it live in the lumen of the bowel as a harmless commensal in the vast majority of these individuals? On the correct answer to this question, in the last analysis, depends the existence or nonexistence of an amebiasis problem in this country.

So far as the available evidence of scientific value is concerned, there is no reason to believe that Endamoeba histolytica lives and multiplies in the lumen of the intes-

13. Magath, T. B., and Brown, P. W.: Am. J. Trop. Med. **10**: 113 (March) 1930.

tine of man without some of the amebas invading the tissues. I have stated elsewhere, and further experience has only confirmed my opinion, that Endamoeba histolytica is essentially a tissue parasite and that there can be no infection with this parasite without the production of pathologic lesions, however minute such lesions may be. This organism undoubtedly cytolyses intestinal epithelium and by means of its ameboid motility penetrates the intestinal tissues, and it is illogical to believe that it will continue to live in the intestine for long periods of time without attacking the mucous membrane. Whether symptoms of the infection occur or not depends, in all probability, on the natural resistance of the individual. The great majority of "carriers" of this parasite are so resistant that the minute lesions produced by it are healed almost as rapidly as they are produced and no symptoms develop, but if resistance is lowered by overwork, poor food, the enervating effect of a tropical climate, improper diet, repeated exposure to massive infections, or stress and strain of whatever cause, symptoms of diarrhea or dysentery will develop after a variable period. It should also be remembered that the absence of symptoms does not prove that lesions have not been produced by the parasite, as will be noted later.

If the work on the experimental production of infection with Endamoeba histolytica in susceptible animals is critically reviewed, it will be found that there is no evidence that this parasite can live for long periods in such animals without producing pathologic lesions. In all well controlled and properly conducted experiments of this kind, it has invariably been found that if the amebas have actually established themselves in the animal, i. e., if infection has actually occurred, lesions due to their presence have always been found somewhere in the intestine. In no instance, so far as I know, has it been shown that an animal has become a true "carrier" of Endamoeba histolytica in the sense that no lesions of amebiasis have been produced in the intestine. Even when no symptoms of the infection have been noted in such animals, an examination of the intestine after the animal has been killed has always shown some lesions caused by the parasite. We may state, then, that so far as experimental evidence based on animal experimentation is concerned, there is none that favors the theory that Endamoeba histolytica can live for long periods of time in the lumen of the intestine without invading the mucous membrane. Transient infections have been reported in animals in which the amebas were present in the feces for a few days and in which no lesions were found in the bowel, but these infections cannot be considered as comparable with the carrier condition in a person in whom the organisms are found in the feces for weeks, months and even years.

Likewise is it true that there exists no evidence that Endamoeba histolytica can live in the intestine of man without invading the mucous membrane and causing pathologic lesions. The absence of symptoms in the majority of carriers has been urged by those who believe that at times the parasite is harmless as proof of this belief, but it is well known that marked lesions due to its presence may exist without appreciable symptomatology. As long ago as 1891, Dock [14] demonstrated that marked amebic ulceration may exist in the intestine in individuals who present no symptoms of dysentery and who give no history of the infection, and this pioneer observation has been confirmed by Musgrave [15] in the Philippines, by Bartlett [16] in Egypt, and by James [17] in Panama. All these authorities have found definite ulcerations caused by Endamoeba histolytica in the intestine of individuals free from symptoms of the infection, so that the absence of symptoms is no proof that ulcerations caused by this parasite are not present. In referring to Bartlett's investigations, J. G. Thomson [18] says:

> The work of Bartlett in Egypt, with whom I was closely associated in the same hospital during the war, offered most striking proof that serious pathological lesions of the large intestine may exist without causing symptoms noticeable either to the patient or to the medical attendant, lesions which may only be discovered, as they were by Bartlett, in the postmortem room. The pathological lesions may be so minute as almost to defy detection by the naked eye, but, on the other hand, larger lesions in the cecum can occur with no clinical signs of dysentery at any time during life. The first signs of an infection may be the formation of a liver abscess.

The reference in this quotation to liver abscess is important because, in my own experience, I have seen seven cases of amebic abscess of the liver, all originating in individuals who had never been out of the United States, and all in individuals who had never suffered from dysentery or repeated attacks of diarrhea.

It is needless to stress this point further except to state that those who believe that absence of symptoms proves the harmlessness of Endamoeba histolytica in carriers of the parasite have no scientific basis for such a belief.

A considerable proportion of carriers of Endamoeba histolytica do present symptoms of their infection. Just what this proportion is it is impossible to state, and it will certainly be found to vary greatly in different localities and among different peoples. In my own experience covering the past ten years, during which time I have paid special attention to the subject, I would say that approximately 30 to 50 per cent of carriers of this parasite present symptoms. I base this conclusion on the history given by the patient, the demonstration of the parasite in the feces, and the disappearance of the symptoms after appropriate treatment succeeded in eliminating the amebas. I cannot follow those who are so enthusiastic in their conception of the pathogenicity of this parasite that they believe there is a definite clinical picture associated with infection with Endamoeba histolytica in carriers, but I do firmly believe that certain symptoms are frequently caused by it, connected with the gastro-intestinal nervous systems. Space forbids their consideration at this time, but in previous contributions [19] I have discussed the symptoms in detail. Those observed are in no way pathognomonic of the condition, as similar symptoms may occur in numerous disease conditions of the gastro-intestinal tract; but their occurrence should always lead to an examination of the feces for Endamoeba histolytica and proper treatment for the elimination of the parasite if it is found.

As an illustration of the results I have frequently obtained in surveys as to the occurrence of symptoms in carriers of Endamoeba histolytica, I may briefly detail those noted in the examination of the 184 professional men at the Army Medical School, among whom 24 infections with this parasite were found. In one of these cases there was a history of the occurrence

14. Dock, George: Centralbl. f. Bakt. **10**: 227, 1891.
15. Musgrave, W. E.: Philippine J. Sc. **5**: 229, 1910.
16. Bartlett, C.: Quart. J. Med. **10**: 185, 1917.
17. James, W. M.: Ann. Trop. Med. **22**: 201 (Aug.) 1928.
18. Thomson, J. G.: J. State Med. **33**: 563 (Dec.) 1925.
19. Craig (footnote 4): A Manual of the Parasitic Protozoa of Man, Philadelphia, 1926; Internat. Clin. **1**, series 39, 1929.

of definite amebic dysentery, so that there are left for consideration twenty-three presumably healthy carriers of this parasite. Of these, no less than sixteen, when questioned, admitted the occurrence of symptoms which might have been caused by infection with Endamoeba histolytica. Thus, all but one gave a history of repeated slight attacks of diarrhea or constipation, accompanied by colicky pain in the abdomen. In addition, they all stated that they had symptoms of gastric and abdominal distress at times after eating, and that gaseous eructations and distention of the abdomen with gas were frequently noted. Among the other symptoms elicited by inquiry were headache, capricious appetite, muscular aching, especially in the legs in the early morning, mental depression, and tenderness over the right iliac region. In all but three of these carriers there was a condition of underweight of from 5 to 20 pounds (from 2.3 to 9 Kg.), and in eight of them there was a slight anemia, the red blood corpuscles averaging about 4,000,000 per cubic millimeter. It is evident that none of these symptoms are diagnostic of amebiasis, but that they were probably due to the parasite is evidenced by the fact that after treatment and the disappearance of the amebas the symptoms disappeared; those who were underweight returned quickly to a normal weight, and those who were anemic reached a normal blood count within two weeks. Most of these cases were followed for several months and all remained free from the symptoms mentioned, as well as from the amebas. However, I have seen hundreds of carriers in whom no symptoms were noted, so that it is certainly true that, so far as symptomatology is concerned, this parasite can live in perfect equilibrium with its host.

Some of those who have advocated the idea that Endamoeba histolytica may be a harmless commensal in man believe that different strains of the organism differ in virulence and that some strains are avirulent. Here, again, all the evidence available is against such a supposition.

In 1913, Walker and Sellards [20] demonstrated by actual experiments on human volunteers that the feeding of cysts of Endamoeba histolytica from the feces of healthy carriers of the parasite, who had never had symptoms of their infection, produced amebic dysentery in such volunteers, and Kessel's [21] work with kittens demonstrated conclusively that the amebas from carriers were as pathogenic to these animals as those obtained from patients having amebic dysentery. In fifty-eight attempts to infect kittens with twenty strains of Endamoeba histolytica from acute cases of amebic dysentery, thirty-five, or 60 per cent, were successful, while of 103 attempts to infect kittens with twenty different strains from carriers of this parasite, fifty, or 49 per cent, were successful. Spontaneous recovery sometimes occurred in both groups; the incubation periods were similar, and the length of life in the two groups in the fatal infections did not vary. This work has been confirmed by Dobell,[22] who found that a strain of Endamoeba histolytica isolated in cultures from a carrier with no symptoms of his infection was just as capable of causing lesions in kittens as a strain cultivated from a case of acute amebic dysentery. In the extensive experiments now being conducted by Faust in the Department of Tropical Medicine at Tulane University of Louisiana School of Medicine, on amebiasis in dogs, there has been no evidence that Endamoeba histolytica from carriers of the infection is less virulent than from individuals presenting symptoms of the disease, and in a recent paper Faust [23] states that "there is no detectable difference in susceptibility (of the dog) to human strains of an acute, chronic or carrier type."

The avirulent species of amebas practically indistinguishable from Endamoeba histolytica described by Brumpt [24] under the names Entamoeba dispar and Entamoeba hartmanni, confusion with which he believes explains the absence of symptoms in most carriers, are not accepted by English and American authorities, and I have seen nothing in my work on amebiasis which would lead me to believe that these so-called species of amebas exist. The experimental work of Walker and Sellards, Dobell, Kessel and Faust amply demonstrate that Endamoeba histolytica in carriers is virulent both to man and to susceptible animals, and Kessel [21] definitely states that amebas among the strains he used presented the morphology described by Brumpt as that of Entamoeba dispar, and that kittens inoculated with such amebas developed the same dysenteric symptoms and showed the same pathologic changes as those inoculated with typical Endamoeba histolytica.

It has been found by all who have studied the subject that individuals infected with Endamoeba histolytica frequently enter hospitals or clinics for other conditions, or for the treatment of obscure gastro-intestinal symptomatology, and properly conducted surveys for this parasite in hospitals and clinics have invariably resulted in the discovery of numerous infections with this parasite which were hitherto unsuspected. It is impossible at this time to review the evidence that has accumulated which demonstrates beyond doubt that a considerable proportion of patients admitted to hospitals, and who consult gastro-enterologic clinics in this country, are suffering from infection with Endamoeba histolytica; but that this is true is now recognized by all well informed physicians.

I have stated that in order to establish the existence of an amebiasis problem in this country it is necessary to prove that Endamoeba histolytica is a parasite pathogenic for man, that it is present in a significant proportion of the population, and that its presence endangers the health of the individual harboring it. I believe that the data covered in this contribution prove every one of these contentions. There is no doubt of the pathogenic nature of the parasite; the evidence is conclusive that it is widespread throughout the United States, it being conservatively estimated that from 5 to 10 per cent of the population harbor it; that even in the so-called healthy carriers symptoms are produced by its presence in the intestine; and that, though symptoms may be absent, ulcerative lesions may occur in the bowel and amebic abscess develop in the liver of infected individuals. In addition, I [25] have shown that complement binding substances develop in the blood serum of carriers of Endamoeba histolytica, a fact which definitely proves that there must be tissue injury by the amebas and a reaction on the part of the body resulting in the production of such substances. In view of all these facts I believe that amebiasis is a real public health problem in the United States and that something should be done to solve this problem.

20. Walker, E. L., and Sellards, A. W.: Philippine J. Sc. **8**: 253, 1913.
21. Kessel, J. F.: Am. J. Hyg. **8**: 311 (May) 1928.
22. Dobell, C.: Parasitology **23**: 1, 1931.
23. Faust, E. C.: Am. J. Trop. Med. **12**: 37 (Jan.) 1932.
24. Brumpt, E.: Précis de parasitologie, ed. 4, Paris, Masson & Cie, 1927.
25. Craig, C. F.: Am. J. Trop. Med. **7**: 225 (July) 1927; Proc. Nat. Acad. Sc. **14**: 520 (July) 1928; Ann. Int. Med. **5**: 170 (Aug.) 1931.

MEASURES OF CONTROL

What measures are useful and practicable in the public health control of this infection? It is obvious that it is not possible to diagnose, segregate and treat the million or more individuals in this country who harbor the parasite. However, it is possible to do something to combat the condition, and the measures that are believed to be of the greatest practical value are the recognition and treatment of the infections occurring in the practice of physicians and surgeons and the examination of the feces of food handlers in institutions, hospitals, hotels, restaurants and all places where food is served to the public, followed by the treatment of those who are found infected. To these measures should be added education of the public to the prevalence, method of transmission, and danger to health of infection with this parasite, and simple rules of personal hygiene to prevent spreading the infection.

The diagnosis of infection with Endamoeba histolytica cannot be made on clinical symptoms alone. Even when acute dysenteric symptoms are present, the diagnosis should always be confirmed by the demonstration of the parasite in the feces, and such demonstration is absolutely necessary in the diagnosis of the carrier condition. The symptoms that may be present in carriers, while suggestive, are not diagnostic, and a diagnosis based on anything less than the finding of the parasite in the feces, or in material obtained through the proctoscope, is worthless.

The difficulty of differentiating Endamoeba histolytica from the other species of amebas occurring in the intestine of man, especially from Endamoeba coli, has, I believe, been exaggerated. While in individual instances it may be necessary to resort to very technical staining methods to make such a differentiation, for clinical and public health purposes I do not hesitate to say that any physician or technician of average ability can be taught to recognize the trophozoite and the cystic stages of this parasite after several days of personal instruction by a qualified instructor and a few weeks of practical work on the subject. The first essential, then, in an attack on this infection is the training of physicians and technicians in the microscopic diagnosis of Endamoeba histolytica as observed in the feces. The second essential is the routine examination of the feces of all patients coming under the observation of physicians and surgeons and the realization by the profession in general that routine fecal examinations are probably even more important than the routine blood examinations that are now so generally practiced by the medical profession. If such examinations were made throughout this country, a large number of infections with Endamoeba histolytica would be discovered and could be eliminated if properly treated. In this way the general profession would contribute largely toward solving the amebiasis problem.

As regards the public health measures that might be taken to control the infection, it is submitted that the examination of food handlers employed in the places mentioned previously and the proper treatment of those found infected would practically solve the problem so far as widespread transmission of infection is concerned. It is undoubtedly true that the vast majority of infections with Endamoeba histolytica in this country are acquired through food handlers in public eating places. While in rural communities infection undoubtedly occurs in the home, and while this is also true to a lesser extent in the cities, it is no less true that the great source of infection in this country is the food handler in public eating places. The education of the public will curb home infection to a large degree, but only the discovery and proper treatment of carriers who are public food handlers, will result in any great decrease in the incidence of this parasite.

It has been urged against this procedure that the expense of treatment of the large number of carriers among public food handlers precludes the adoption of the measure. It is not believed that this objection is a valid one, for already some municipalities in this country are examining such food handlers and forbidding their employment until they are free from the infection and in some instances are paying wholly, or in part, for their treatment. In the United States Army no food handler who is a known carrier of Endamoeba histolytica is allowed to handle food in kitchens, dining rooms or other eating places until the infection is eradicated by proper treatment; and the same rule has been adopted by other public and private institutions. While it would be best to bar all carriers who are food handlers from public eating places until they are rid of their infection, this is not absolutely necessary, if economically harmful, for the carrier can be given treatment without interrupting his employment. He can be warned that he is a danger to others and instructed in the measures of personal hygiene that will prevent the transmission of the infection to others while under treatment. It is, I believe, perfectly feasible to examine public food handlers and to treat those that are found infected, and in view of the known pathogenic nature of Endamoeba histolytica every effort should be made to discover and treat such carriers of the parasite. At the present time several drugs that are very efficient in eliminating the parasite are available, and doubtless still more efficient ones will be discovered, so that success in the cure of the carriers may be depended on, provided the infections are discovered.

I have previously referred to the tendency on the part of many members of the medical profession to minimize the importance of Endamoeba histolytica as a pathogenic parasite. As an illustration of this, I may state that frequently, in conversations with carriers of this parasite who have consulted me with reference to their infection, I have been informed that their physicians have assured them that the parasite is practically a harmless one and that, unless symptoms develop, treatment should not be instituted. One can hardly conceive of more pernicious professional advice than this in view of the established facts regarding this infection. It is thoroughly unscientific and rests on no evidence except the opinions of those who must have had a very limited experience with the carrier state in amebiasis. Unfortunately, some protozoologists of note, with no clinical or postmortem experience in human medicine, have stated in their writings that the parasite may perhaps live in the lumen of the human intestine without invading the mucous membrane, and their dictum has been accepted by a portion of the medical profession. I can do no better than to quote again from J. G. Thomson[18] in answer to such statements. He says:

> Here there is again a definite attempt to assure the medical profession and the public that the presence of cysts in the stools is, in the absence of symptoms, of less importance than previously thought. After my study of the whole position from a clinical, pathological, zoological and hygienic point of view I entirely disagree with these mollifying sentences of Dobell and Stiles. Both have failed to realize the fact, well known to medical men at home and in the tropics, that clinical signs are only manifest when disease attains to a certain degree of severity.

CONCLUSION

The importance of treatment of infections with Endamoeba histolytica, even though there may be no symptoms present that have attracted the attention of the infected individual, cannot be overstressed. No one can tell what pathologic lesions may be present in such individuals or what lesions may develop in the future. Every individual harboring this parasite should be treated as soon as the diagnosis is made. Treatment is for the best interests not only of the patient but also of the public, as the cure of every infection reduces by that much the danger of the transmission of the parasite to others.

PARENTERAL LIVER THERAPY IN THE TREATMENT OF PERNICIOUS ANEMIA

MAURICE B. STRAUSS, M.D.
AND
WILLIAM B. CASTLE, M.D.
BOSTON

HISTORY OF PARENTERAL LIVER THERAPY IN PERNICIOUS ANEMIA

Following the discovery by Minot and Murphy [1] that liver, administered in adequate amounts, would effect a remission in pernicious anemia, Cohn, Minot and their associates [2] attempted the fractionation of liver in order to discover the nature of the substance responsible for this effect. In February, 1929, they [3] developed a fraction considered pure enough to administer intravenously to patients, which, when so injected, produced maximum reticulocyte responses and prompt rises of the erythrocyte counts. However, about 25,000 Gm. of liver (later reduced to about 8,000 Gm.) had to be fractionated to secure the amount of material necessary to produce a maximum effect.[4] Further work by West and Howe [5] resulted in the preparation of a fraction which produced maximal responses when given intravenously in similar amounts.[6]

A year later, Aubertin and Voillemin [7] reported moderately satisfactory results from the daily intramuscular injection of the material derived from 360 Gm. of liver (corresponding to a single injection of material derived from 2,200 Gm. of liver) and in September, 1930, Achard and Hamburger [8] reported excellent results in one case from the daily intramuscular injection of 0.135 Gm. of material extracted from 450 Gm. of liver (corresponding to a single injection of the material derived from 2,700 Gm. of liver), although an abscess developed at the site of an injection.

The extracts just mentioned represented no economy in the amount of liver required for the treatment of patients or in the cost of the extract as contrasted to oral therapy.

Gänsslen,[9] in November, 1930, reported satisfactory results in the treatment of pernicious anemia by the daily intramuscular injection of an extract derived from 5 Gm. of liver. The preparation of this extract has not been described. Independently, Castle and Taylor [10] reported maximal responses following a single intravenous administration of extract derived from 100 Gm. of liver, and subsequently Strauss, Taylor and Castle [11] stated that maximal responses could be obtained from a single injection of the material derived from 20 Gm. of liver, and demonstrated that with slight modifications this extract was entirely suitable for intramuscular administration.[11a]

PREPARATION OF SIMPLE PARENTERAL LIVER EXTRACT

The extract, the preparation of which we have previously described,[11] is a simple water solution of liver extract No. 343 (N. N. R.), now brought without buffer to p_H 7.4, filtered and preserved by the addition of tricresol. Liver extract No. 343 is essentially the same as fraction G of Cohn, Minot and their associates [2] and contains many of the different substances present in liver, whereas the intravenous extracts previously mentioned contain fewer impurities. In an emergency, liver extract No. 343 derived from 100 Gm. of liver (the contents of one vial) may be dissolved in 20 cc. of warm water, filtered, boiled for five minutes and injected with the only disadvantage that the intramuscular injection is painful, whereas a similar amount of the properly neutralized extract may be injected at one time without excessive discomfort, and from 2 to 5 cc. will seldom cause any discomfort whatever. Extracts of greater purity have been repeatedly employed, and it has been found that further fractionation or removal of material results in a loss of potent material. Furthermore, if the dry extract (No. 343) derived from 100 Gm. of liver (about 4.5 Gm.) is dissolved in less than 20 cc. of water, there is reason to believe that the solution is not as effective, probably owing to the failure of all the potent material to enter solution.

It is our purpose in this communication to report our observations on the use of this extract in twenty-seven patients with pernicious anemia in relapse with sufficiently low erythrocyte counts to make the reticulocyte responses [12] an adequate index of dosage. There will be mentioned also certain preliminary observations, made on these and about fifty other patients, as to the question of maintenance dosage and the effect of this extract on the neurologic manifestations of the disease.

From the Thorndike Memorial Laboratory, Second and Fourth Medical Services (Harvard) of the Boston City Hospital, and the Department of Medicine and the Department of Tropical Medicine of the Harvard University Medical School.

1. Minot, G. R., and Murphy, W. P.: Treatment of Pernicious Anemia by a Special Diet, J. A. M. A. **87:** 470 (Aug. 14) 1926.

2. Cohn, E. J.; Minot, G. R.; Fulton, J. F.; Ulrichs, H. F.; Sargent, F. C.; Weare, J. H., and Murphy, W. P.: The Nature of the Material in Liver Effective in Pernicious Anemia: I, J. Biol. Chem. **74:** 69 (July) 1927.

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5. West, Randolph, and Howe, Marion: A Crystalline Derivative of an Acid Present in Liver, Active in Pernicious Anemia, J. Biol. Chem. **88:** 427 (Aug.) 1930.

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11. Strauss, M. B.; Taylor, F. H. L., and Castle, W. B.: Intramuscular Use of Liver Extract, J. A. M. A. **97:** 313 (Aug. 1) 1931.

11a. Since this manuscript was submitted, two articles confirming our original observations on the use of large doses of liver extract parenterally have appeared (Murphy, W. P.: The Parenteral Use of Liver Extract in Pernicious Anemia, J. A. M. A. **98:** 1051 [March 26] 1932. Connery, J. E., and Goldwater, L. J.: Parenteral Use of Liver Extract in Treatment of Pernicious Anemia, ibid., p. 1060).

12. Minot, G. R.; Murphy, W. P., and Stetson, R. P.: The Response of the Reticulocytes to Liver Therapy, Particularly in Pernicious Anemia, Am. J. M. Sc. **175:** 581 (May) 1928. Minot, G. R.; Cohn, E. J.; Murphy, W. P., and Lawson, H. A.: Treatment of Pernicious Anemia with Liver Extract: Effects on the Production of Immature and Mature Red Blood Cells, ibid. **175:** 599 (May) 1928.

INTRAMUSCULAR VS. INTRAVENOUS ADMINISTRATION

We have been unable to detect any difference in effect on blood formation between intravenous and intramuscular injection. However, reactions accompanied by chill and fever occurred in about one third of patients in relapse who received an initial intravenous injection, and in one patient with a history of natural allergy there occurred a severe nonfatal shock following the third intravenous injection at weekly intervals. This was the only alarming reaction among about 200 intravenous injections. However, since the intramuscular method has not in our experience produced a systemic reaction from any one of over 2,000 injections in more than 100 patients, we have abandoned the intravenous route altogether, although occasionally one may prefer the intravenous administration of the material to the intramuscular when large doses must be given.[13]

LOCAL REACTIONS TO INTRAMUSCULAR INJECTIONS

Local reactions to intramuscular injection were observed only in patients who had previously been receiving liver or liver extract by mouth. These reactions occurred in about 10 per cent of such cases and were characterized by an area of erythema, varying in diameter from 1 to 10 cm., depending on the amount injected, and accompanied by some soreness, which lasted for between one and two days. Whether or not such reactions will occur may be determined by injecting 0.1 cc. of extract intradermally. If, twenty-four hours later, no erythema is present, intramuscular injections will be free from reaction. However, our practice has been to make the initial injection of from 2 to 20 cc. solely with regard to the condition of the patient. If a local reaction occurs, the second injection is given in the same site as soon as the signs of reaction have disappeared, and this area is used for subsequent injections. We have found that a reaction ordinarily does not occur after the fourth injection. In this fashion, several areas should be locally desensitized so that injections need not always be made in a single area. When it is desired to give daily injections in a sensitive patient, the first three injections may be made in as many different areas on successive days and then these areas used in rotation thereafter. However, if at any time (in some cases, months later), even during the daily administration of extract at one or more sites locally desensitized, an entirely new site is chosen for injection, local erythema may be produced.

RESULTS ON BLOOD FORMATION OF THE ADMINISTRATION OF A SINGLE INJECTION OF EXTRACT DERIVED FROM 10 TO 100 GM. OF LIVER

Four patients received a single injection of the extract derived from 10 Gm. of liver, as shown in the accompanying table. Two showed no significant increase in either reticulocytes or mature erythrocytes. Two had small reticulocyte responses and each increased the total erythrocyte count by 400,000 cells per cubic millimeter in twelve days. All four patients had subsequent reticulocyte responses of greater magnitude than the first, following the administration of larger amounts of extract.

Two patients received at a single injection the extract derived from 15 Gm. of liver. Both showed small nonmaximal reticulocyte responses. One gained 500,000 erythrocytes per cubic millimeter in twelve days, and the other none. Both had secondary reticulocyte responses to larger injections.

Six patients received initial injections of the extract derived from 20 Gm. of liver. Four showed maximal reticulocyte responses; two of these each gained 1 million red blood cells per cubic millimeter; one gained 560,000 from an initial level of 1,445,000, and one 370,000 from a level of 2,775,000 red blood cells per cubic millimeter, all within the first twelve days after the injection. The remaining two patients showed no response to this dose of extract, nor did either of these patients respond to a daily dosage of the extract derived from 600 Gm. of liver by mouth. They were both obviously unusually resistant cases. Both, however, responded maximally to the injection of extract derived from 100 Gm. of liver.

Results of Administration of Varying Single Doses of Parenteral Liver Extract to Patients with Pernicious Anemia in Relapse

Amount of Liver from Which Extract Was Derived (Dose)	Initial Erythrocyte Level, Millions per C.Mm.	Reticulocyte Peak, per Cent	Calculated Maximum Reticulocyte Peak, per Cent	Day of Reticulocyte Peak	Erythrocytes Gained in Twelve Days Millions per C.Mm.
10 Gm. (2 cc.)	0.96*†	2.0	31	..	....
	1.04*	3.2	29	..	....
	1.04*	15.2	29	7	0.40
	1.22*	11.2	26	7	0.40
15 Gm. (3 cc.)	0.68*	15.2	40	7	....
	1.06*	12.4	29	8	0.50
20 Gm. (4 cc.)	1.03	**31.2**	29	5	1.09
	1.07	**37.6**	29	6	1.00
	0.68*‡	4.3	40	7	....
	1.50*‡	0.8	20	..	....
	1.44	**18.4**	21	6	0.56
	2.77	**4.0**	6	7	0.37
25 Gm. (5 cc.)	1.08‡	15.8	29	6	1.10
30 Gm. (6 cc.)	1.80*†	8.6	17	8	....
40 Gm. (8 cc.)	0.77	**31.8**	38	6	1.03
50 Gm. (10 cc.)	1.29‡§	8.4	24	7	0.50
100 Gm. (20 cc.)	1.01	**27.8**	30	6	1.00
	1.33	**17.8**	23	5	0.94
	1.49#	**25.4**	20	6	1.20
	0.92‡	**33.8**	32	7	0.63
	0.96	**34.4**	32	5	1.35
	1.00‡¶	**29.8**	30	5	1.15
	2.24‡¶	6.0	12	6	0.71
	1.34‡	**19.8**	23	6	0.98
	1.56	**17.6**	20	5	0.84
	3.23‡	**6.2**	5	4	0.31
	0.73	**43.2**	39	7	1.49

* Patient subsequently responded to the injection of a larger dose of extract.
† Active infection present.
‡ Patient failed to respond to the daily administration by mouth of the extract derived from 600 Gm. of liver.
§ Patient was subsequently given double this dose without a secondary reticulocyte response.
# Patient failed to respond to the daily administration by mouth of the extract derived from 300 Gm. of liver.
¶ Patient had sprue with free hydrochloric acid in the gastric contents.

Four patients received parenterally in one dose the extract derived from 25 to 50 Gm. of liver. One showed a maximal reticulocyte response and gained 1 million erythrocytes per cubic millimeter in twelve days. One, with an active febrile urinary infection, showed a poor response but later responded well to a larger amount of extract. The two other patients showed submaximal responses, and both subsequently failed to gain when given daily by mouth the extract derived from 600 Gm. of liver, although they both improved when given parenterally extract derived from 100 Gm. of liver.

Eleven patients received a single parenteral injection of the extract derived from 100 Gm. of liver. Five of these patients had been taking by mouth extract derived

13. In the treatment of cases of sprue in Porto Rico by one of us (W. B. C.), among several hundred intramuscular injections a few febrile reactions were observed in debilitated patients given in one dose the amount of extract derived from 50 to 100 Gm. of liver.

from 600 Gm. of liver daily, and a sixth, extract from 300 Gm. daily. The high incidence in this series of patients failing to respond to moderately large doses of liver extract by mouth was due to a purposive selection of such "resistant" cases in order to demonstrate that these cases were resistant only because of the practical limitations in the amount of extract which may be administered by mouth. Such patients comprise but a small percentage of all patients with pernicious anemia. Ten of these eleven patients developed maximal reticulocyte responses, and those with an initial red blood cell level of 2 million cells per cubic millimeter or less showed gains of from 630,000 to 1,490,000 erythrocytes per cubic millimeter in twelve days. One patient, whose erythrocyte count remained at 2,240,000 cells per cubic millimeter, while he received the extract derived from 600 Gm. of liver daily by mouth, had a maximal reticulocyte count of only half the expected number but gained 710,000 red blood cells per cubic millimeter in twelve days.

The fact that maximum reticulocyte responses had been obtained with as small a total dose as 800 mg. of fraction G (derived from 20 Gm. of liver) was difficult to reconcile with the identification by West and Howe of a crystalline salt of quinine [5] as the potent material in liver, since they had found it necessary to inject from 300 to 800 mg. of their crystalline derivative of fraction G to obtain a maximal reticulocyte response. They have recently [14] stated that they do not now believe that their crystalline derivative is the potent material. At best, the crystals contained but three times as much potent material per milligram as the extract we have used. The purest fraction of Cohn, McMeekin and Minot [15] gives maximal reticulocyte responses only when injected in amounts of 150 mg. or more and hence is but five times as concentrated.

From these data it may be inferred that the processes of fractionation thus far employed, beyond the stage of fraction G,[16] remove almost as much potent material as impurities from liver.

MAINTENANCE DOSE

Before the advent of liver therapy it was known that approximately 30 per cent of patients suffering from pernicious anemia did not relapse following spontaneous remission for over a year and that only half of the patients relapsed within six months.[17] There is evidence that, following a liver induced remission, liver may be omitted without relapse occurring for similar periods of time. Therefore, the fact that patients may show no evidence of relapse under any regimen of therapy does not indicate the adequacy of that treatment unless the period of observation is at least twelve months and frequently much longer. There is at present an opinion that injections given at monthly intervals may be adequate for maintenance purposes. While this may be so, it is obvious that no conclusions can safely be drawn until after a sufficient period of time. The recent adoption of practical parenteral liver therapy makes any conclusive statement at this time impossible.

On theoretical grounds, the treatment of any deficiency disease, in which class pernicious anemia appears to belong,[18] should be as continuous as is practically possible. Rickets, scurvy and beriberi are treated and prevented from recurring by the daily administration of the necessary material. Myxedema is usually treated by the daily administration of thyroid. With oral liver therapy this practice has held, but with injectable extract it frequently becomes more convenient to give treatment at less than daily intervals. The optimum practical interval remains to be determined.

We have observed over a period of ten months entirely satisfactory results obtained from injections given at intervals of one to two weeks in a number of cases, but shorter intervals are theoretically preferable. Some patients have maintained a normal blood from the weekly injection of the extract derived from 15 Gm. of liver, while a few have required weekly injections of as much as the extract derived from 100 Gm. of liver. So far as we have observed, as has been noted for liver and extract when taken by mouth,[19] there is no more uniformity in the dose of parenteral liver extract required by different patients than has been found in the amount of insulin which different diabetic patients require. To give every sufferer from pernicious anemia an "average" dose of liver extract appears as absurd as giving every diabetic patient an "average" dose of insulin.

The treatment of pernicious anemia is not with liver or liver extract but with enough potent material for the individual case irrespective of its source or method of administration. This fact has been repeatedly emphasized.[20] It must also be remembered that the fact that any particular extract is derived from a given amount of liver does not guarantee that it retains the potency of that amount of liver. An ounce of gold extracted from a ton of ore is not more valuable than an ounce of gold extracted from a pound of ore. The potency of the product, not the amount of the source, is important. Symptoms or signs of relapse referable to any system of the body, especially the hematopoietic, central nervous or gastro-intestinal tracts, demand more therapy, no matter how much is already being administered or by what method.

NEUROLOGIC SYMPTOMS OF SPINAL CORD DEGENERATION

In a group of twenty patients with subacute combined spinal cord degeneration treated with adequate parenteral liver therapy there have been no instances of progression of spinal cord symptoms. Indeed, this has been the experience of many observers with oral liver therapy in adequate amounts.[21]

Many of the patients have shown a striking gain in strength, coordination and ability to return to normal living. Continuous improvement has occurred over the course of the entire ten months that some of the patients have been treated.

USE OF PARENTERAL LIVER THERAPY IN CONDITIONS OTHER THAN PERNICIOUS ANEMIA

Injections of liver extract have been employed in cases of hemolytic jaundice, Banti's disease, leukemia,[22] aplastic anemia, and azotemic nephritis in an effort to

14. West, Randolph, and Howe, Marion: A Crystalline Derivative of an Acid Present in Liver: A correction, J. Biol. Chem. **94**: 611 (Dec.) 1931.
15. Cohn, E. J.; McMeekin, T. L., and Minot, G. R.: The Nature of the Substance Effective in Pernicious Anemia, Tr. A. Am. Physicians **45**: 343, 1930.
16. Cohn, Minot, Fulton, Ulrichs, Sargent, Weare and Murphy (footnote 2). Cohn, McMeekin and Minot (footnote 15).
17. Cabot, R. C., in Osler's Modern Medicine **5**: 33, 1927.
18. Castle, W. B.: Observations on the Etiologic Relationship of Achylia Gastrica to Pernicious Anemia: I. The Effect of the Administration to Patients with Pernicious Anemia of the Contents of the Normal Human Stomach Recovered After the Ingestion of Beef Muscle, Am. J. M. Sc. **178**: 748 (Dec.) 1929.
19. Beebe, R. T., and Lewis, G. E.: The maintenance Dose of Potent Material in Pernicious Anemia, Am. J. M. Sc. **181**: 796 (June) 1931.
20. Minot, G. R., and Castle, W. B.: The Adequate Treatment of Anemia, Ann. Int. Med. **5**: 159 (Aug.) 1931.
21. Starr, Paul: The Prevention of Spinal Cord Degeneration in Pernicious Anemia, J. A. M. A. **96**: 1219 (April 11) 1931.
22. By Dr. C. E. Forkner.

relieve the anemia associated with these conditions, with entirely negative results.

Seven patients with sprue treated with parenteral liver extract in Boston have all improved markedly, whether or not a macrocytic anemia was present. Observations on a large series of sprue cases treated by one of us (W. B. C.) in Porto Rico will be reported at a later date, but it may be stated at present that they confirm these results.

INDICATIONS FOR PARENTERAL LIVER THERAPY IN PERNICIOUS ANEMIA

Intramuscular liver extract therapy is indicated for:

1. Patients who are severely ill.
2. Patients who cannot tolerate adequate amounts of liver or liver extract by mouth because of gastro-intestinal symptoms.
3. Patients who cannot afford the expense of the necessary quantities of potent material by mouth.
4. All patients who fail to maintain freedom from symptoms referable to the disease and a normal blood on the maximum amount of potent material which they are able to take by mouth; i. e., the so-called resistant cases.
5. Patients with progressive or stationary neurologic signs or symptoms.

PRACTICAL ROUTINE OF TREATMENT

The treatment of the average patient with pernicious anemia in relapse may be accomplished satisfactorily by the daily intramuscular injection of 2 cc. of liver extract.[1a] When the condition of the patient is such that an emergency exists, from 5 to 20 cc. of the extract may be injected intramuscularly for the first two or three days, followed by daily injections of 2 cc.

While it is obvious, from the data presented, that certain patients will give maximum responses from a single injection of 4 cc. of extract, it is far safer to err by giving more than enough extract than by giving too little. It is for this reason that the doses mentioned are considered advisable for routine treatment, rather than smaller ones.

It has already been brought out that the question of a maintenance dose cannot be settled at this time. When, in addition to a blood normal in all respects, consideration of all aspects of a case reveals no remediable abnormality, the dose may in certain instances be reduced. In the usual case, two or three injections of 2 cc. of extract a week, or a single weekly injection of from 5 to 10 cc., presumably may suffice. However, in the resistant case much more than this amount will be needed. In each case the blood and general condition should be studied at frequent intervals to insure adequacy of treatment.

It has been our practice to continue daily injections of at least 2 cc. of extract in all cases with neurologic manifestations, irrespective of the fact that smaller amounts will maintain the blood at a normal level. How long this dose should be continued remains for the future to decide. The keynote of therapy should be always to give more than "just enough."

CONCLUSIONS

1. Intramuscular liver extract therapy in pernicious anemia has numerous advantages over oral therapy and is entirely free from systemic reaction when properly prepared extracts are employed in the usual dosage. Intravenous therapy is not infrequently accompanied by a systemic reaction and has ordinarily no advantages not secured by intramuscular injection.

2. The single dose necessary to produce a maximum response of new erythrocytes has been found to vary from the extract derived from 20 Gm. of liver to the amount derived from 100 Gm. of liver in twenty-seven patients tested. This is true only if the extract is so prepared as not to lose any of its potency in the process.

3. Intramuscular liver therapy has been found of great benefit in "resistant" cases of pernicious anemia and in cases presenting symptoms due to spinal cord degeneration.

THE TREATMENT OF PERNICIOUS ANEMIA WITH HORSE LIVER EXTRACT

PRELIMINARY REPORT

OSCAR RICHTER, M.D.
ARTHUR E. MEYER, PH.D.
AND
ANDREW C. IVY, M.D., PH.D.
CHICAGO

The value of cattle liver and desiccated hog stomach in the treatment of pernicious anemia is established. The "active principle" has been reported to be present in a number of tissues.[1]

Our work was undertaken to determine (1) whether horse liver contains the antianemic principle active in pernicious anemia, and (2), if so, its relative concentration or potency. A positive finding would increase the commercial source of liver, since many horses are slaughtered daily at Rockford, Ill., and the meat packed for human and canine consumption; and it is possible that the yield from horse liver might be greater and the extract lend itself more readily to purification and concentration. It is also possible that horse liver extract might prove to be more efficacious on oral administration and hence render the necessity of intramuscular injections unnecessary in those patients who do not respond to cattle liver given orally.[2]

METHOD OF PREPARING HORSE LIVER EXTRACT

The livers used for preparing the extract were selected from healthy United States government inspected horses. The livers were ground while still warm and immediately extracted with water, and the water extract was then fractionated by heat and alcohol approximately like Minot's[3] method of preparing fraction G. This fraction, soluble in 70 per cent alcohol, was used in our work on patients with pernicious anemia.

RESULTS

The fraction soluble in 70 per cent alcohol was found to be entirely soluble in water. It does not form a precipitate on standing in the icebox for five months. The content of solids in this fraction was 1.8 Gm. of extract for each hundred grams of whole liver. When cattle liver is treated according to Minot's method, 100 Gm. of liver yields approximately 4.3 Gm. of extract, or less "purification" is accomplished. The fact that the horse liver extract is more pure may be due to several factors, such as the freshness of the liver, the

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Miss Helen Legere, Technician.

This work was made possible by a grant from the Chappel Foundation for Organotherapeutic Research and was done at Northwestern University and Cook County Hospital.

1. Minot, G. R., and Castle, W. B.: Ann. Int. Med. **5**: 159 (Aug.) 1931.
2. Jagic, N., and Klima, R.: Wien. klin. Wchnschr. **43**: 877 (July 10) 1930. Wolff, E. G. K.: Med. Klin. **26**: 767 (May 23) 1930. Mills, E. S.: Canad. M. A. J. **24**: 632 (May) 1931. Schulten, H.: München. med. Wchnschr. **77**: 49 (Jan. 10) 1930.
3. Cohn, E. J.; Minot, G. R.; Fulton, J. F.; Ulrichs, H. F.; Sargent, Florence C.; Weare, J. H., and Murphy, W. P.: J. Biol. Chem. **74**: lxix (July) 1927.

use of water for the original solvent and the time given for the 70 per cent alcohol precipitation, and not to any special difference between horse and cattle liver. Obviously, the only true test of "purification" and potency is the therapeutic test in pernicious anemia patients, since no laboratory test has yet been developed for assaying scientifically the active principle. In order to test the potency of the horse liver extract, the staff of Cook County Hospital cooperated by turning over to us patients with pernicious anemia.

Only typical cases without organic complications other than central nervous system involvement were observed and treated. The diagnosis of these cases was checked by careful clinical, laboratory and roentgenologic examination. All patients presented the classic picture of pernicious anemia with achlorhydria. The gave horse liver extract equivalent to 240 Gm. of liver, three times a day. In addition to this, the two groups received the same well balanced, high vitamin and caloric diet free of edible glandular viscera. A reticulocyte count was made at from one to five day intervals as indicated, and a complete blood examination was made every five days.

The observations in the two groups of patients are shown in the tables and chart. It is quite evident from a study of the data that the antianemia principle for pernicious anemia is present in horse liver and that the horse liver extract was more potent than the "accepted" cattle liver extract used in our "control group" of patients. The horse liver extract, which was more "pure" than the cattle liver extract, not only yielded a better reticulocyte response but also caused a more

TABLE 1.—*Response of Seven Patients with Pernicious Anemia to an "Accepted" Cattle Liver Extract* *

Patient	Age	Number of Relapses	Days on Treatment	Changes in Hemoglobin Percentage		Changes in Red Blood Cells, Millions		Maximal Reticulocyte Percentage Observed	Comment
				Before	After	Before	After		
J. C.	62	1	92	16	78	0.620	2.98	8	No progress last twenty-seven days; changed to whole liver at this point
O. D.	63	1	131	31	83	1.27	3.96	13	No progress in last twenty-nine days
J. O.	59	2	76	12	68	0.620	2.74	21.4	Very little progress in last twenty-seven days
L. K.	68	3	27	73	78	3.20	3.36	3	Not much progress in twenty-seven days; left hospital
B. S.	34	1	126	35	78	0.960	3.84	9.6	No progress in last two months
D. S.	43	2	54	38	68	1.78	3.40	7.3	No apparent increase in last thirty-two days; placed on equine liver extract—result shown in table 2
J. K.	66	1	145	34	70	1.29	2.39	10	500 cc. whole blood given prior to treatment; no progress in last eighty-four days; placed on equine liver extract—results in table 2
Average patient			93	34.1	74.7	1.391	3.238	10.2	
Net average increase					40.6		1.847		
Average daily gain per patient					0.436		19.860		

* Dosage: Extract equivalent to 240 Gm. of liver, three times a day.

TABLE 2.—*Response of Ten Patients with Pernicious Anemia to an Equine Liver Extract* *

Patient	Age	Number of Relapses	Days on Treatment	Changes in Hemoglobin Percentage		Changes in Red Blood Cells, Millions		Maximal Reticulocyte Percentage Observed	Comment
				Before	After	Before	After		
R. D.	47	1	82	33	80	0.95	4.00	16.4	Normal
J. G.	61	3	31	32	81	1.18	3.73	15.4	Still on treatment; gaining rapidly
W. G.	61	5	85	24	82	0.96	4.18	15.4	Normal
C. J.	59	3	57	18	77	0.74	3.14	26	Still on treatment; making progress
B. M.	48	1	68	25	76	0.90	4.10	24	Normal
K. P.	79	3	58	30	87	0.89	4.37	40	Normal
M. Sm.	48	3	57	26	85	0.91	4.25	16.8	Normal
M. St.	43	1	54	34	80	0.82	4.00	24	Normal
D. S.	43	2	28	68	91	3.40	4.40	....	These two patients are those referred to in table 1, who became normal after changing to equine extract
J. K.	66	1	28	70	83	2.39	4.05	....	
Average patient			54	36.0	82.2	1.314	4.022		
Net average gain					46.4		2.708		
Average daily gain per patient					0.86		50.100		

* Dosage: Extract equivalent to 240 Gm. of liver, three times a day.

Wassermann tests of the blood were negative, and the stools were negative for blood and ova. The urine showed occasional traces of albumin, which disappeared usually during the beginning of remission. The objective manifestations of the nervous system were limited in most cases to the lower extremities and to a less extent to the upper extremities and varied from diminished or loss of position and vibratory sense to the more marked manifestations of exaggerated reflexes, spasticity and ataxia.

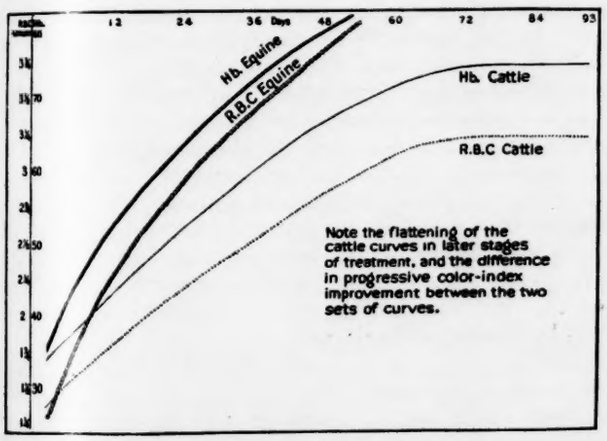
Since we desired, if possible, to obtain some idea of the relative potency of the horse liver extract as compared to cattle liver extract, we divided our patients into two groups. To one group, which we call the control group, we gave a standard cattle liver extract (accepted by the Council on Pharmacy and Chemistry of the American Medical Association), equivalent to 240 Gm. of liver three times a day. To the other group we rapid and continued increase in red cells and hemoglobin and was adequate in the dose employed. Omitting patients D. S. and J. K., who appear in both tables, seven of the eight patients reached the four million level in from forty to eighty days. The case of D. S. further suggests that the horse liver extract is probably more potent in equivalent dosage than the cattle liver extract. This patient on being placed on cattle liver extract showed an increase in red cells from 1.78 to 3.40 million in the first twenty-two days, at which level he remained for thirty-two days; then on being changed to the horse liver extract the red cells increased to 4.4 million in twenty days, and J. K. has reacted similarly.

We realize that the data and number of cases studied so far are insufficient to establish the possibility that horse liver extract as prepared is more potent than cattle liver extract, even though we were certain, and

we are not, that the cattle liver extract chemically represents as complete extraction of cattle liver as was obtained by us in preparing the horse liver extract. This we cannot assume scientifically, even though the cattle liver extract used in our control group is a council-accepted and a widely used liver extract. Even with a larger series of cases, we feel that it would be difficult to prove this point conclusively, and that conclusive proof awaits the chemical isolation of the active principle or principles and the discovery of a biologic test that is less subject to variation than the response of a patient with pernicious anemia.

The general form of the curves, and the data on the recovery of patients with pernicious anemia reported by Minot and Murphy [4] and Sturgis and Isaacs [5] on feeding cattle liver extract and desiccated stomach are very similar to those obtained from horse liver extract. But we cannot use the data on their cases because a varying dosage was used, these observers using in most of their cases the extract of from 500 to 1,200 Gm. of cattle liver daily, whereas we used uniformly the extract of 720 Gm. daily.

The peak of the reticulocyte count was observed between the fifth and the ninth day and was associated



The lines of progress made by patients treated with equine liver extract in hemoglobin production (per cent, Sahli) and increase in red blood cells, as compared to similar patients on cattle liver extract.

with the other evidence of blood regeneration. This was usually followed by an immediate improvement of the patient's subjective symptoms. The average maximal observed reticulocyte increase with the horse liver extract was 22.4 per cent, which is that reported by Sturgis and Isaacs using Lilly's Liver Extract in varying dosage. The average maximal observed reticulocyte increase with the cattle liver extract in uniform dosage was 11.5 per cent. (In arriving at this figure, we omitted C. K.'s case because of the high initial red cell count. Omitting this case from group 1 and that of D. S. from group 2, which must be done for purpose of comparison, the average initial red cell count of group 1, treated with cattle liver, was 1.09 million and of group 2, treated with horse liver, 0.92 million. This is pointed out because it is well known that the reticulocyte response depends on the initial red cell count).

CONCLUSIONS

1. An extract of horse liver has been prepared which is low in total solids (1.8 Gm. from 100 Gm. of raw liver) and of which an oral administration induces a complete remission in pernicious anemia.

2. A preliminary study of the comparative concentration or potency of the antianemia principle or principles active in pernicious anemia present in horse and cattle liver suggests that the concentration may be greater in the liver of the horse.

3144 North Cicero Avenue.

4. Minot, G. R., and Murphy, W. P.: Treatment of Pernicious Anemia by a Special Diet, J. A. M. A. **87**: 470 (Aug. 14) 1926. Minot and Castle (footnote 1).

5. Sturgis, C. C., and Isaacs, Raphael: Ann. Int. Med. **5**: 131 (Aug.) 1931.

MOTOR PARALYSIS OF INDIVIDUAL NERVES

FOLLOWING ADMINISTRATION OF PROPHYLACTIC SERUMS

ALFRED GORDON, M.D.
PHILADELPHIA

Since the introduction of antimicrobic serums, a fairly large number of complications have been observed, motor and sensory phenomena occupying the most important place among them. It has been noted that all serums administered for therapeutic purposes are apt to present paralytic phenomena. Antitetanic, antipneumococcic, antidiphtheritic, antistreptococcic and antituberculous serums are the most frequently encountered, and among them antitetanic serum occupies the first place in frequency. The serums mentioned, with the exception of one, are all being administered for therapeutic purposes in the course of the maladies that are already in evolution. A voluminous literature has accumulated, showing a variety of complicating disorders. Antitetanic serum is the one frequently given as a preventive measure, and in this capacity it is incriminated as the direct cause of the paralytic phenomena that occasionally follow its administration.

In the discussion that follows, reference will be made exclusively to the preventive inoculations of serums. This subject is comparatively new if antitetanic preventive serum is excluded. Few observations have been recorded concerning morbid phenomena following the administration of prophylactic serums. Jacobsohn, Jundell and Lönberg [1] in 1926 mentioned headache, chills, nausea, vomiting, fever as high as 103.1, and urticarial eruptions. In the work of Toomey, Fullerton and Kishman,[2] a great variability of reaction to the Dick test is found, with the symptoms just mentioned, and the latter depend on the susceptibility of the individual. In none of the references on the subject is involvement of the nerve trunks or of the central nervous system mentioned. About two years ago, I presented before the Philadelphia Neurological Society two patients who in the course of immunization against scarlet fever, after the first injection of 250 and 500 units, respectively, on the third day began to show signs of gradually oncoming wrist drop. I pointed out that the early complication is quite different from the post-therapeutic paralysis which usually appears in approximately eight to fifteen days. Since then, four similar cases have come under my observation.

CASE 1.—K. J., a girl, aged 10 years, gave a history that three days after the injection of the serum in the right deltoid area she noticed a generalized pruritus and that she could not raise her hand above the wrist. The temperature was one degree above normal, and there was a general malaise and some

1. Jacobsohn, G.; Jundell, I., and Lönberg, N.: Acta pædiat. **6**: 250 (Dec. 18) 1926.

2. Toomey, J. A.; Fullerton, R. M., and Kishman, M. E.: Studies in Scarlet Fever, Am. J. Dis. Child. **33**:420 (March) 1927.

dull pain over the right arm, which, however, lasted but twenty-four hours. On examination there was a typical musculospiral paralysis and a slight tenderness in the musculospiral groove. The objective sensibility over the entire right upper extremity was normal. The hand was flexed, adducted and slightly pronated. The fingers were flexed and the thumb was adducted. The forearm was also flexed. The wrist drop was distinct. There was no noticeable muscular atrophy. The reflexes of the affected extremity were only diminished. The electrical reactions showed only diminution of response but no reactions of degeneration. Complete recovery followed in four weeks.

CASE 2.—A. C., a girl, aged 8 years, twelve hours after the first immunization of 500 units in the right deltoid region, observed an intense generalized pruritus, aching and a burning sensation over the entire arm, and twelve hours thereafter was unable to pick up objects with the right hand. Examination three days later revealed a typical musculospiral palsy. The latter was purely motor in character, as the objective sensibility to all forms of sensations was intact. Reflexes, the nutrition of the musculature, and electrical reactions were all unaltered. The case progressed favorably and, under continuous treatment with massage and systematic exercises, recovery was complete in five weeks.

CASE 3.—H. J., a boy, aged 13 years, received one immunization inoculation against scarlet fever, 500 units being given over the left deltoid area. Pruritus and general malaise with elevation of temperature appeared on the second day. On the third day the patient observed a gradually oncoming wrist drop on the left. Three days later he came under observation, and the examination showed a typical musculospiral palsy of the motor type, without any involvement of sensations. There was no atrophy and no reactions of degeneration. The patient made an uneventful recovery at the end of five weeks.

The three cases just described and the two reported two years ago present a striking similarity in onset, localization and termination.

CASE 4.—F. N., a girl, aged 12 years, had a prophylactic inoculation against scarlet fever, 250 units being given in the back between the two scapulae. On the third day there was a chill and intense pruritus. In the evening of the same day the patient complained of pain behind the left ear. On the following day a slight deviation of the face to the right was noticeable. Liquids would run out of the mouth. The left eye could not close entirely. Wrinkling of the left side of the forehead was incomplete. The patient was unable to whistle correctly. There were no sensory disturbances on the left side of the face. The taste was intact. Briefly speaking, there was a facial palsy of the peripheral type. The paralysis, however, was slight, although distinct. The pain over the parotid region gradually subsided, and it disappeared on the fifth day. The facial palsy lasted seven weeks and recovery was complete. Here again the duration of the paralysis was brief. The similarity between the involvement of the individual spinal nerves and a bulbar nerve was in every respect striking.

From a prognostic standpoint, it is well to emphasize this peculiarity when one bears in mind the multiplicity of untoward manifestations and the duration of the latter in therapeutic inoculations of serums.

I shall now consider briefly the pathogenesis of the paralytic phenomena in prophylactic inoculations as described in the four cases. The appearance of a generalized pruritus, immediately or very shortly after the inoculation, leads one to consider the possibility of "shock" following the introduction of a foreign protein. Widal long ago called attention to morbid phenomena due to a violent disturbance of equilibrium of the humoral or tissue colloids and not due to infection or intoxication, as, for example, in attacks of asthma, paroxysmal hemoglobinuria or urticaria. All such phenomena are ephemeral, of short duration, and leave no sequelae. In our four cases the general pruritus and the brief duration of the paralytic phenomena of isolated nerves, spinal and bulbar, may well be considered as due to "shock" caused by the serum. In the cases of paralysis occurring during the therapeutic inoculations, one may argue that it is not the serum but the original disease that produces the condition and that the serum only modifies the effect of the toxi-infectious agent. The objection to this assumption lies in the fact that all serums may produce the same paralytic phenomena whether it is in the treatment of diphtheria, tetanus, streptococcus, or pneumococcus infections. This view is particularly untenable when one considers the occurrence of nerve paralysis in prophylactic inoculations against diseases that are not in existence. It is therefore the toxic power of the serums per se that must be incriminated, and "shock" is the mechanism.

As to the lesion itself, did the serum attack the peripheral nerves or their roots? What was the modus operandi? There cannot be any question of a direct traumatic neuritis because the topographic relation between the seat of the inoculation and that of the paralysis does not permit of such an assumption. The same absence of direct correlation has been observed in cases of serotherapeutic paralysis of nerve trunks, such as those seen after the administration of antitoxin in tetanus, diphtheria, pneumonia, streptococcemia, and so on. In the literature on the subject of complications following inoculations or vaccination, there are a few records showing alterations in the chemical composition of the cerebrospinal fluid. Increase of cells, of albumin and of sugar has been noted.[3] Richet long ago showed a congestion of the central nervous system after experimental shock. If, as a consequence of shock due to the introduction of foreign protein, changes of the cerebrospinal fluid and paralysis of individual nerves take place, one is bound to admit an involvement of the central origin of these peripheral nerves, and the lesion is localized either in the cells of the gray matter of the cord which give birth to the nerve filaments of the roots, or at the level of the roots themselves. The serum produces a congestion of the cellular or radicular blood vessels, followed by epidural edema, thus compressing the nerve fibers of individual roots. In the cases which last a long time, in which gross muscular atrophy with reactions of degeneration follow, the vascular congestion and edema in the roots is probably followed or accompanied by a localized thrombosis or hemorrhage. In the prophylactic inoculations, as seen from the four cases previously described, the paralytic complication usually lasted a brief period of time, and total recovery followed invariably in all. There was evidently a temporary and transient congestion of the gray matter in the cord or of the roots of the musculospiral nerves in three cases, and of the facial nerve in the fourth case.

This group of four cases presents a very important feature from a prognostic standpoint, for the following reason: It was previously mentioned that the paralytic phenomena with muscular alterations are considerably more serious in character and duration in cases of therapeutic inoculations than in cases of prophylactic inoculations. Especial attention is called to the fact that the nerves or plexuses involved in the first are of a mixed character, that is, motor and sensory, or chiefly sensory; while in the latter the nerves are chiefly motor in function (the musculospiral nerve in three cases and the facial nerve in the fourth case). To explain this physiologic phenomenon I shall refer to the

3. Moussaud and Weissenbach: Paris méd. **17**: 224 (Aug.) 1915.

experimental work done by myself [4] several years ago. It concerned the histologic and corresponding functional results obtained from injections of alcohol into motor, sensory and mixed nerves in dogs. By this method I succeeded in demonstrating the following facts: A motor nerve is considerably less influenced than a sensory or a mixed nerve; functional recovery follows in cases of injections into a motor nerve; in cases of sensory or mixed nerves, persistent sensory, trophic and motor disturbances follow injections of alcohol; in cases of motor nerves the gross nerve bundles are not affected, only the perineural connective tissue suffers, but then a condition of repair is evident even in cases of long standing; in the cases of sensory or mixed nerves, however, the histologic changes are conspicuous not only after recent injections but also long after the first injection (twenty-nine days). These anatomic observations correspond precisely to the clinical manifestations seen following injections of alcohol for therapeutic purposes. Thus, for example, a facial paralysis produced by injections of alcohol into the trunk of the seventh nerve disappears completely and the function of the nerve is totally restored, as is observed in the treatment of fascial spasm, however frequently the intraneural injections may be repeated. In cases of purely sensory or mixed nerves there is a very high susceptibility to the effect of an irritating substance such as alcohol: the objective sensory disorders may remain permanently and lead eventually to trophic disturbances. With repeated therapeutic injections, the destruction of such nerves may be complete.

The analogy between the effect of alcohol and of antitoxins or immunization serums is evident. The clinical untoward manifestations observed in localized injections of alcohol or of therapeutic antitoxins, or as in the previously described cases of immunization, are virtually identical.

There is another practical feature in the observations recorded here, and this is the medicolegal aspect. Since the Dick test and immunization are being employed on a large scale with very satisfactory results, the patients and their relatives should be reminded of the possibility of undesirable complications but should be informed that the latter are very rare and that if they do occur their short duration is characteristic. The physician cannot be held accountable for it, because it is humanly impossible to foresee individual susceptibility to foreign proteins. A favorable prognosis can be readily given. To avoid all possible litigations, it is suggested to have the patients sign a certificate relieving the physician from all responsibility and consequences of immunization work.

SUMMARY

In three cases of musculospiral palsy and one case of facial palsy following the administration of prophylactic inoculations against scarlet fever, the paralyses lasted four, five and five weeks, respectively, in the arm cases, and seven weeks in the face case.

The paralytic phenomena in prophylactic inoculations are of much shorter duration than those of therapeutic inoculations.

The trophic disturbances, such as muscular wasting, are absent in the first but present in the second category of inoculations.

Paralysis of motor nerves is transient and temporary, while paralysis of sensory or mixed nerves is more prolonged and grave in character.

Paralytic phenomena following immunization are quite rare.

Immunization with serums is so valuable and useful a prophylactic measure that one should not be deterred from using it, especially in view of the temporary character and brief duration of and complete recovery from the paralytic phenomena.

The prognosis is invariably favorable.

1812 Spruce Street.

4. Gordon, Alfred: J. Nerv. & Ment. Dis. **41**:164 (Feb.) 1914.

AGE FACTOR IN ACTIVE IMMUNIZATION OF INFANTS AGAINST DIPHTHERIA

JULIUS BLUM, M.D.
NEW YORK

At present it is common practice to provide active immunization for all infants and children of preschool age with toxin-antitoxin mixtures or toxoid, without a preliminary Schick test. Various ages have been suggested during infancy as the most desirable time to begin such immunization. In an extensive campaign of advertising, a prominent life insurance company recommends, under the caption "Six Months Old Today," that the infant be taken to the physician at that age, to be actively immunized against diphtheria. Posters may be seen in welfare agencies and baby health stations, recommending that the child be immunized on its first birthday. In view of these practices, an investigation was undertaken to determine the proper age when active immunization should be instituted. An exceptional opportunity was afforded to carry out this work at the Home for Hebrew Infants, where the children are under observation for three or four years and can be repeatedly tested.

Susceptibility to diphtheria in the early years of life is definitely shown by the incidence of the positive Schick test at various age periods. Most children in cities are born with a passive antitoxic immunity which is inherited from the mother. It would seem that the age at which this immunity is lost, as determined by the change from a negative to a positive Schick test, would be the most suitable time for active immunization. A positive reaction is comparatively so infrequent during the first half year of life, as shown in the early work of Schick,[1] Park and Zingher,[2] and myself,[3] that it is hardly necessary to consider this period. Zingher's [4] tests, carried out on a large scale in baby health stations and playgrounds in New York City, are noteworthy.

In New York City there were twenty-two deaths from diphtheria in infants under 1 year of age in 1929 and sixteen in 1930 (table 1). Seven deaths occurred between 6 and 9 months of age in 1929 and only two in 1930. As stated, the proper time at this age period to begin immunization without a preliminary Schick test is a moot question. As will be shown subsequently, in view of the results obtained from protective inocula-

From the Home for Hebrew Infants and the Research Laboratory of the New York City Department of Health.

1. Schick, Béla: Specifische Therapie der Diphtherie, Centralbl. f. Bakt., part 1, **57**: 16, 1913, reference supplement, pp. 16-35; die Diphtherie Toxin Hautreaktion des Menschen als Vorprobe der prophylaktischen Diphtherieheilseruminjektion, München. med. Wchnschr. **60**: 2608, 1913.

2. Park, W. H.; Zingher, Abraham; and Serota, H. M.: The Schick Reaction and Its Practical Applications, Arch. Pediat. **31**: 481, 1914.

3. Blum, Julius: Active Immunization Against Diphtheria, New York M. J. **107**:208 (Feb. 2) 1918; Active Immunization Against Diphtheria in a Large Child-Caring Institution, Am. J. Dis. Child. **20**: 22 (July) 1920.

4. Zingher, Abraham: The Schick Test Performed on More Than 150,000 Children in Public and Parochial Schools in New York (Manhattan and the Bronx), Am. J. Dis. Child. **25**: 392 (May) 1923.

tion in infants under 9 months of age, most of these deaths probably could not have been prevented. A noteworthy feature of the mortality rate in diphtheria in New York City is the reduction, by more than 50 per cent, from 463 deaths in 1929 to 198 in 1930. This reduction in mortality in 1930 corresponds to the rate in other large cities of the United States compared with the rate five years before.[5] Has this great reduction in mortality been caused by a natural fluctuation of the disease or by preventive measures such as toxin-antitoxin and toxoid immunization? An investigation of the 198 deaths from diphtheria in New York City in 1930 revealed that there was a history of protective inoculation in only four cases. Two of these cannot be ascribed to a failure of immunization, as the inoculations were completed a few days before the onset of the disease. Records of active immunization for the deaths in 1929 are not available. There has also been a remarkable decrease in the incidence of this disease in New York City for the past five years. From 1927, which was the peak year, with 13,507 cases and 717 deaths, there has been a rapid decline in both incidence and mortality to 1930, when there were 3,794 cases and 198 deaths. It is quite possible that the intensive campaign of active immunization in New York City during the past few years has been an important factor in the lessened incidence of the disease and in the reduction of mortality.

TABLE 1.—*Deaths from Diphtheria (Including Croup) in New York City*

Age	1929 Number	1929 Per Cent	1930 Number	1930 Per Cent
3 to 6 months	6	1.3	3	1.5
6 to 9 months	7	1.5	2	1.0
9 months to 1 year	9	1.9	11	5.5
1 to 4 years	254	54.9	101	51.0
5 to 9 years	146	31.5	58	29.2
10 to 14 years	19	4.1	8	4.0
15 to 19 years	5	1.1	0	0.0
20 to 24 years	2	0.4	5	2.5
25 to 69 years	15	3.2	10	5.0
Total	463		198	

Park has shown that toxin-antitoxin injections are inadvisable before the age of 6 months, because during this time most infants still retain the inherited passive antitoxic immunity from the mother. The failure to produce antitoxin actively before the age of 6 months, and even later when the inherited passive immunity has not been lost, is ascribed to overneutralization of the toxin-antitoxin injected. It would be interesting to ascertain whether the results would be different with toxoid, in which the factor of overneutralization does not enter. If the results were successful, active immunization could be instituted earlier in life. This investigation has been begun and will be reported later. At present there are about 150 cases of immunization with toxoid under observation.

For the past three years, on admission to the institution, all children, irrespective of age, and without a preliminary Schick test, were given three injections, one week apart, of toxin-antitoxin in 1 cc. amounts. Tests were performed at frequent intervals, varying from six months to three years after immunization, to see whether the reaction remained negative or positive. A negative reaction was evidence of successful immunization because at the close of observation the minimum age of the children was 15 months, at which time, one would expect from 80 to 90 per cent of them to have lost their inherited passive immunity. A positive Schick test was evidence of a failure on the part of the toxin-antitoxin to immunize, because in cases in which inoculation has been done when the test is positive, immunization has been successful in about 95 per cent of cases at the institution.

The proportion of positive reactions to the first test after immunization, from birth to 9 months of age, is less than the percentage of positive reactions to the later test. This is due to the fact that the inherited antitoxic immunity from the mother has not yet been lost. The greatest proportion of subsequent positive Schick reactions, 32.4 per cent, occurred in the youngest age group, from birth to 3 months, and the smallest proportion, 5.4 per cent, occurred in the oldest age group, from 2 to 4 years of age. The proportion of positive reactions in the 3 to 6 and 6 to 9 months groups is the same, 25.7 per cent. In the groups 9 months to 1 year and 1 to 2 years there is an appreciable drop in the number of unsuccessful inoculations. The percentages are 15.4 and 8.3, respectively. As a public health measure, it is evident that the inoculation of children under 9 months of age, without a preliminary Schick test, is hazardous. From one fourth to one third of the infants inoculated would still be susceptible to diphtheria, and the parents would have a sense of false security. Infants under 9 months of age should not be actively immunized against diphtheria without a preliminary Schick test. Sufficient stress has not been laid on this very important point in the literature on the subject.

In baby health stations, when mothers are not in regular attendance it may be advisable to immunize infants from 6 to 9 months of age without a preliminary test. At all times, both in public health work and in private practice, children should be tested from three to six months after active immunization. So much reliance has been placed on the excellent results of active immunization against diphtheria that the final step, a subsequent Schick test, has been only too often neglected.

TABLE 2.—*Results of Active Immunization with Toxin-Antitoxin Without a Preliminary Schick Test*

Age	Number of Children Injected	Schick Tests After Immunization: First Test* Negative Reactions	First Test* Positive Reactions	First Test* Percentage of Positive Reactions	Later Test† Negative Reactions	Later Test† Positive Reactions	Later Test† Percentage of Positive Reactions
0 to 3 months	37	27	10	27.0	25	12	32.4
3 to 6 months	35	28	7	20.0	26	9	25.7
6 to 9 months	35	28	7	20.0	26	9	25.7
9 months to 1 year	39	34	5	12.8	33	6	15.4
1 to 2 years	84	74	10	11.7	77	7	8.3
2 to 4 years	37	35	2	5.4	35	2	5.4

* Tests made not earlier than three to six months after toxin-antitoxin injections.

† Tests made not earlier than three to six months after first test (minimum age of children, 15 months).

CONCLUSIONS

1. The response to active immunization with toxin-antitoxin was least from birth to 3 months of age (about one-third failures), and greatest from 2 to 4 years of age (about 5 per cent of failures). Of infants under 9 months of age, from one fourth to one third failed to respond to active immunization.

2. The tissues of the infant respond best to active immunizing measures after the passive immunity inherited from the mother is lost.

5. Diphtheria Mortality in Large Cities of the United States in 1930: Eighth Annual Report, J. A. M. A. **96**: 1768 (May 23) 1931.

3. Infants under 9 months of age should not receive toxin-antitoxin without a preliminary Schick test.

4. As a public health measure, it may be advisable to provide active immunization for infants from 6 to 9 months of age, if they cannot be inoculated at another time.

5. All children should be given the Schick test from three to six months after active immunization. This precaution is often neglected.

6. Only 2 of the 198 individuals who died from diphtheria in New York City in 1930 had received protective immunization.

7. The reduction in mortality from diphtheria in the large cities of the United States in 1930 compared to that of five years ago is more than 50 per cent.

8. It is quite possible that the intensive campaign of active immunization in New York City during the past few years has been an important factor in the lessening of the incidence of the disease by about 70 per cent.

340 West Eighty-Sixth Street.

THE DIAGNOSTIC SIGNIFICANCE OF HEMATEMESIS

ANDREW B. RIVERS, M.D.
AND
DWIGHT L. WILBUR, M.D.
Fellow in Medicine, the Mayo Foundation
ROCHESTER, MINN.

Hemorrhages of the gastro-intestinal tract that occur when lesions are present in the upper part of the abdomen are often dramatic and alarming, especially if blood is vomited, but the primary hemorrhage is rarely fatal. Hematemesis does not accompany all such hemorrhages, nor is it always evidence of disease in the upper part of the gastro-intestinal tract. Therefore a great deal of mystery and difficulty seem to have been attached to the making of a diagnosis in such cases. We shall attempt to show that usually the diagnosis of the underlying pathologic process is relatively simple, and that it may frequently be made on the basis of the history alone. Diagnostic features are present even when causes of such bleeding are unusual; it is, however, sometimes impossible to discover the source of the bleeding, even at operation or necropsy.

Expressed in simplest terms, the cause of all gross bleeding is rupture of a blood vessel with escape of blood, either into the surrounding tissue or to a surface of the body. Application of this definition in cases of hematemesis demonstrates the multiplicity of forces that may cause such bleeding, but it is our purpose to focus special attention on the relatively few causes which in the majority of cases actually lead to hematemesis.

The simple immediate treatment, which is usually sufficient to control hematemesis, may be given before the diagnosis is accurately established. It usually is not essential to make an accurate diagnosis before treatment is begun, for after the bleeding is controlled there is generally sufficient time to do this and to institute effective permanent therapeutic measures. Hasty surgical treatment is frequently ineffective in controlling bleeding and may jeopardize rather than increase the patient's chances of survival. Since experience has shown that surgical treatment causes a higher mortality than expectant treatment, the burden of responsibility is on those who advise the former.

From the Division of Medicine, the Mayo Clinic.
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LITERATURE

Review of the literature reveals, chiefly, isolated reports of cases of hematemesis, and only a few reports of collected cases, such as those of Balfour,[1] Miller,[2] Smithies [3] and Rivers.[4]

Balfour readily divided his cases of hematemesis into those of known and of unknown causes, and the former he subdivided into intragastric and extragastric. In the intragastric group were included, as the most common, ulcers, carcinomas, hemorrhagic lesions and benign tumors. In the extragastric group were included ulcer of the duodenum, diseases of the liver (cirrhosis), diseases of the spleen, and so forth. He noted the frequency of bleeding in cases of gastric ulcer (25 per cent of all cases) and of duodenal ulcer (20 per cent of all cases), and the relative rarity of gross hemorrhage in carcinoma of the stomach.

Miller reviewed 151 cases of hematemesis which had come under observation in the medical wards of a general hospital and found the incidence to be: peptic ulcer (gastric and duodenal), 64 per cent; gastric carcinoma, 22 per cent; splenic anemia, 9 per cent, and cirrhosis of the liver, 5 per cent. Other causes were infrequent.

Comprehensive lists of all the probable causes of hematemesis are given by Smithies and by French.[5] It is the attempt to recall such large and confusing lists of the few common, and the many rare, causes of hematemesis that has helped to maintain the belief that the differential diagnosis is difficult. An additional cause of confusion is the frequent reports in the literature of infrequent causes of hematemesis, thus giving undue prominence to the existing cases.

MATERIAL FOR STUDY

In order to obtain information regarding the relative significance of various lesions in the production of hematemesis, we selected the histories of all the patients who came to the clinic during 1927 and 1928 with the complaint of hematemesis. The data, which are shown in table 1 and in the chart, were obtained from a study of the cases examined in 1927 and were compared with data from cases examined in 1928; almost an exact reduplication of figures resulted, which indicates that the estimations were reasonably accurate (tables 2 and 3). Cases in which the history was solely of melena were not included, since obviously an accurate check of the origin of such bleeding was not readily obtainable.

Our material included 668 cases; practically all the patients were more than 12 years of age; in 236 of these, operation had not been performed. The diagnosis was made after careful clinical investigation. In 432 of the cases, additional information was obtained through careful surgical exploration.

The data obtainable from the observation of patients coming to the clinic might be at slight variance with those observed in the general practice of medicine, because relatively few patients with such acute infectious diseases as are occasionally accompanied by

1. Balfour, D. C.: Hematemesis, Tr. College Phys., Philadelphia **44**: 236-254, 1922.
2. Miller, T. G.: Gastric Hemorrhage from the Internist's Point of View: Analysis of One Hundred and Fifty-One Cases, Pennsylvania M. J. **32**: 237-241 (Jan.) 1929.
3. Smithies, Frank: Gastroduodenal Hemorrhage, Ann. Int. Med. **1**: 637-654 (March) 1928.
4. Rivers, A. B.: The Significance of Hematemesis, Texas State J. Med. **26**: 492-499 (Nov.) 1930; A Clinical Study of Duodenitis, Gastritis and Gastrojejunitis, Ann. Int. Med. **4**: 1265-1281 (April) 1931.
5. French, Herbert: An Index of Differential Diagnosis of Main Symptoms, ed. 4, New York, William Wood & Co., 1928, pp. 336-347.

hematemesis come to the Mayo Clinic for diagnosis. Such diseases, however, are not common and do not, as a rule, offer difficult problems in diagnosis.

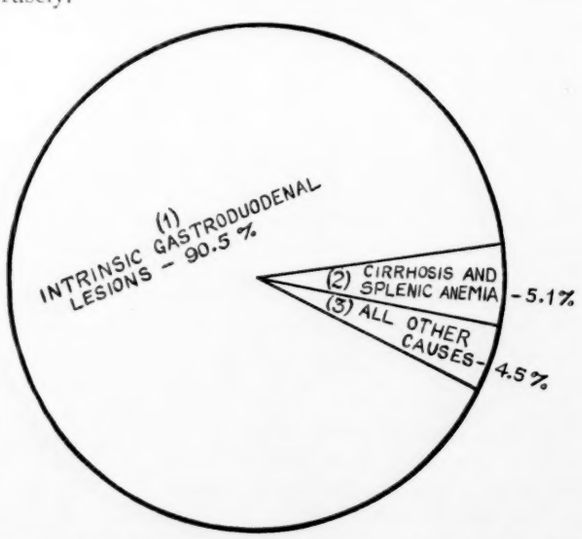
RESULTS

The cases in this study may be subdivided into three groups, as shown in the chart: (1) intrinsic gastroduodenal or jejunal lesions, (2) hemorrhage in which varices seem of significance, and (3) infrequent causes of hematemesis.

Intrinsic Gastroduodenal Lesions.—By far the greatest number of patients (90 per cent) who complained of hematemesis were found to have some intrinsic lesion in the stomach, duodenum or jejunum which could be held responsible for the hemorrhage. Peptic ulcer was the cause of the greatest number of these hemorrhages; more than 75 per cent of the cases were caused by duodenal, anastomotic or benign gastric ulcer.

Duodenal ulcer alone was responsible in more than 50 per cent of hemorrhages that came under our observation in a two-year period. Gastric ulcer, although responsible for only 6.4 per cent of the hemorrhages, is a formidable factor when it is considered that this type of ulcer is relatively much less common than duodenal ulcer. Anastomotic ulcers are rather prone to cause bleeding; this observation was further corroborated in our series of cases. Carcinoma of the stomach accounted for less than 13 per cent of the cases. It is of interest that carcinomas of the stomach usually do not cause sudden gross loss of blood, evidenced by sudden collapse and vomiting of large amounts of blood or by the passing of copious bloody stools.

This group included two cases in which benign tumor of the stomach was responsible for gross hemorrhage. Balfour has pointed out that a benign tumor seldom bleeds. If it does bleed, however, it is likely to bleed profusely.



Illustrating the relative importance of intrinsic gastroduodenal lesions in causing hematemesis (see table 1).

In one case gastric syphilis was reported to have caused hemorrhage. It is rather unusual for gastric syphilis to be responsible for hematemesis, and there is some doubt in this case whether the bleeding was due to the intrinsic gastric lesion or whether the associated hepatic condition might have been the factor of importance in causing the hemorrhages.

This series includes one case of cholecystoduodenal fistula in which the primary lesion was in the duodenum. Cholecystoduodenal fistula usually is not produced in this way. More frequently, the original lesion is in the gallbladder. The duodenum is secondarily involved, and the fistula results because of extension of an inflammatory process through the wall of the gallbladder and subsequently through the wall of the small bowel.

TABLE 1.—*Cases Observed in Which the Complaint was Hematemesis (1927 and 1928)*

Group	Condition	Cases	Per Cent
1	Duodenal ulcer	356	53.30
	Gastric ulcer	43	6.40
	Ulcer type history, roentgenologic examination negative	22	3.30
	Secondary or reactivated ulcer	92	13.80
	Carcinoma of the stomach	84	12.60
	Benign myoma of the stomach	1	0.15
	Pyloric lesion	1	0.15
	Gastric syphilis with hepatic involvement	1	0.15
	Adenoma of the duodenum	1	0.15
	Cholecystoduodenal fistula	2	0.30
2	Cirrhosis of the liver	12	1.80
	Splenic anemia	18	2.70
	Hemorrhage following splenectomy	4	0.60
3	Cholecystitis	13	1.90
	Hemolytic icterus	1	0.15
	Hemophilia, with ulcer type history	1	0.15
	Hemorrhagic purpura	1	0.15
	Indeterminate	15	2.20
	Total	668	

Indigestion is characteristically present in the majority of cases in this group of intrinsic gastroduodenal lesions.

Hemorrhage in Which Varices Seem of Significance.—The factor of secondary significance in the causation of hematemesis seems to be conditions in which the development of gastric or esophageal varices would be expected. Cirrhosis of the liver, especially portal cirrhosis, must be considered of importance. This group included twelve cases in which cirrhosis of the liver was undoubtedly a factor in causing hemorrhage. Splenic anemia has been placed in this category also. This disease, although presenting rather an ill defined syndrome, in which the spleen and liver appear to be important, most likely causes hemorrhage because of varices which are probably associated with secondary hepatic disease. In eighteen cases in this group a diagnosis of splenic anemia was made. In four cases of hemorrhage after splenectomy, the diagnosis rested between portal cirrhosis and splenic anemia. The cause of the bleeding in these cases in all probability was explainable on the basis of portal cirrhosis. Indigestion is not as frequently present in this group in which varices are of importance as in the preceding group.

Infrequent Cause for Hematemesis.—Although it is generally assumed that blood dyscrasia is frequently responsible for hematemesis, this was decidedly not the case in our series of cases. In the total number of 668 cases, there was one case of hemorrhagic purpura, one of hemolytic icterus and one of hemophilia. In the case of hemophilia there was definite clinical evidence of peptic ulcer. The bleeding probably came from this source, augmented perhaps by the fact that the patient was a hemophiliac.

The literature includes many cases in which cholecystitis or appendicitis is held responsible for hematemesis. Our series included thirteen cases in which, at operation, a local gastroduodenal cause was not found for the hemorrhage, and definite evidence of cholecystitis was present. In these cases laparotomy was performed a considerable time after the hemor-

rhage had occurred, making it possible for a local lesion, if present, to heal. It is entirely possible that an inflamed appendix or gallbladder might be responsible for a focal inflammatory gastroduodenal lesion, which, in turn, might be responsible for the bleeding. It is doubtful, however, whether such pathologic processes on either the appendix or the gallbladder lesions are so frequently the cause of hematemesis as is generally believed.

When the fact is considered that hematemesis is regarded as presenting great difficulty in diagnosis, it is of interest to note that only 2 per cent of the total number of cases under our observation in 1927 and 1928 are considered as indeterminate. In a series of 432 cases in which surgical exploration was done, the condition remained unexplained in only five. Furthermore, it should be pointed out that in certain cases surgical intervention was undertaken at varying lengths of time after the hemorrhage had occurred, making it possible for a local lesion in the stomach or duodenum to have healed prior to the institution of exploration.

There seems little doubt that shallow, areal mucosal or submucosal lesions, such as are noted in duodenitis, gastritis and gastrojejunitis, can be responsible for definite hematemesis.[6]

TABLE 2.—*Cases in Which the Complaint was Vomiting of Blood and Exploration was Done (1927 and 1928)*

Condition	Cases	Per Cent
Duodenal ulcer	245	56.6
Gastric ulcer	33	7.7
Secondary or reactivated ulcer	53	12.3
Adenoma of the duodenum	1	0.2
Benign myoma of the stomach	1	0.2
Carcinoma of the stomach	56	13.0
Gastric syphilis with hepatic involvement	1	0.2
Cholecystoduodenal fistula	2	0.5
Cholecystitis	13	3.0
Splenic anemia	16	3.7
Cirrhosis of the liver	5	1.2
Hemolytic icterus	1	0.2
Indeterminate	5	1.2
Total	432	100.0

TABLE 3.—*Cases in Which the Complaint was Vomiting of Blood and Exploration was not Done (1927 and 1928)*

Condition	Cases	Per Cent
Duodenal ulcer	111	47.0
Gastric ulcer	10	4.2
Secondary or reactivated ulcer	39	16.5
Ulcer, according to history, roentgenologically negative	22	9.3
Pyloric lesion	1	0.4
Carcinoma of the stomach	28	11.9
Splenic anemia	2	0.8
Hemorrhage after splenectomy	4	1.7
Hemophilia with ulcer type history	1	0.4
Hemorrhagic purpura	1	0.4
Cirrhosis of the liver	7	3.0
Indeterminate	10	4.2
Total	236	99.8

CONCLUSIONS

1. The source of hematemesis may usually be determined with accuracy if data, obtainable through a detailed anamnesis, careful general examination and systematic laboratory data, are carefully evaluated.

2. The most common cause of hematemesis will be found in intrinsic gastric duodenal or jejunal lesions. Peptic ulcer is by far the most common cause of this symptom. It is well to remember that indigestion and hemorrhage usually mean an intrinsic gastro-intestinal lesion.

6. Rivers (footnote 4, second reference).

3. Diseases in which varices are likely to develop are next in importance in the production of hematemesis; they accounted for 5.5 per cent of the 668 cases of this series.

4. Vomiting of blood is a rare complication in blood dyscrasia, and the recognition of such diseases is usually accomplished without much difficulty.

5. Surgical exploration seems the advisable procedure in cases of repeated hemorrhage when there is no evidence of blood dyscrasia or of hepatic or splenic disease. In practically all such cases the bleeding is explainable on the basis of an intrinsic gastroduodenal lesion.

INCIDENCE OF SYPHILIS IN PRIVATE PRACTICE

EDGAR F. KISER, M.D.
Assistant Professor of Medicine, Indiana University School of Medicine
AND
C. B. BOHNER, M.D.
INDIANAPOLIS

The recent publication of the study of 5,000 routine Wassermann reactions in students at the University of Minnesota has prompted us to report our observations in a series of 2,872 consecutive examinations of patients seen in private practice.

It is a matter of no little difficulty to determine accurately the incidence of any particular disease. This is especially true of syphilis and for obvious reasons. Few health departments require that the disease be reported, and in such communities as make this requirement it is evaded by the physician and patient alike because of the stigma which, to the lay mind at least, attaches to the diagnosis. Relatively few deaths are reported as of syphilitic origin, for like reasons. As a result, the problem is one of great perplexity and has been attacked by numerous investigators from many angles.

Statistics published by the United States Public Health Service [1] for 1927 show a wide variability in the incidence of syphilis, the result, no doubt, of failure to report the disease. Montana for three months reported only twenty-seven cases, which would give that state a rate of only 0.09 per thousand. Mississippi for twelve months reported 14,110 cases, a rate of 7.88 per thousand. On the basis of all cases reported, the incidence rate in the United States was 1.63 per thousand.

One of the most widely quoted recent surveys was undertaken by the New York State Department of Health.[2] Data were obtained from 5,742 sources, divided as follows: 93 per cent from physicians, 1 per cent from clinics, and 6 per cent from hospitals and state institutions. On the basis of population and the number of cases of known syphilis under treatment, a prevalence rate of 2.72 per thousand population was determined. These figures are much lower than those usually quoted. Snow and Brunet [3] estimate that from 10 to 15 per cent of the adult population are infected, with which figures Stevens [4] and Lynch [5] agree.

1. Venereal Disease Information, Bulletin, U. S. Dept. of Health, July 20, 1928.
2. Pfeiffer, Albert; and Cummings, H. W.: Second Study of the Prevalence of Syphilis and Gonorrhea in Upstate New York, Venereal Disease Information, vol. 12, number 11, Nov. 20, 1931.
3. Snow, W. F., and Brunet, W. M.: What Price Syphilis? New York State J. Med. **26**: 560-562 (June 15) 1926.
4. Stevens, A. A.: The Practice of Medicine, Philadelphia, W. B. Saunders Company, 1923, p. 172.
5. Lynch, K. M.: The Prevalence of Syphilis, J. South Carolina M. A. **16**: 9 (Jan.) 1920.

Hazen [6] thinks that 10 per cent of all males in the United States have the disease. Neisser [7] has estimated that 12 per cent of the population in Berlin and Fournier [7] that 15 per cent in Paris are syphilitic.

Perhaps the most reliable figures published were those obtained in examination of recruits for military service. It was Levin's [8] conclusion, based on positive Wassermann reactions in more than 10,000 tests on recruits at Fort Riley, Kansas, that the incidence of syphilis among the white soldiers was 10.5 per cent and among the Negroes 18.3 per cent.

Figures obtained in hospital practice usually run considerably higher. Browning [9] in Glasgow found 14 per cent of dispensary children syphilitic. Fox,[10] in a series of 4,000 cases, found 27 per cent of Negroes and 12 per cent of white persons affected with the disease. The most complete compilation published is that of Machaeras [11] of the dermatologic policlinic of the University of Munich. Based entirely on positive serologic tests, he found for 1926 that 2.3 per cent of patients under treatment at the clinic had primary or secondary lesions, 4.8 per cent had latent syphilis, 0.88 per cent had tertiary manifestations, 0.72 per cent had dementia paralytica, and 0.97 per cent had vascular syphilis.

We are unable to find recorded any information on the incidence of syphilis in private practice, except a study of 380 cases in the pay ward of Barnes Hospital made by Day and McNitt [12] in 1919. We have analyzed our observations in 2,872 consecutive examinations made from Sept. 1, 1925, to Jan. 1, 1932, on private patients who came to our offices for physical examinations. They were of the well-to-do and middle class in about equal proportions. All were white. There were 1,084 men and 1,788 women. The individual occupations are not recorded here, but a cross-section of the group would represent in occupation, wealth and social position an average practice recruited from the so-called upper social strata. None came primarily because of known syphilis; in fact, none had primary lesions at the time of our examination and only two had secondary manifestations.

Blood Wassermann and Kahn tests were made as a routine on each patient in the series. The work was done in a commercial laboratory, all tests were made by a single technician, a man regarded by the physicians of the community as being entirely dependable.[13]

In every instance the complement fixation was done by the Kolmer method, as well as with cholesterolized and alcoholic antigens. No reaction was reported as four plus unless the blood reacted so with all three antigens and showed a four plus Kahn reaction as well. Of the 2,872 patients 105, or 3.65 per cent, responded with such a straight four plus reaction. Sixty-six of the 105 patients were males—an incidence of 6.08 per cent of the 1,084 men in the series; 39 were females—an incidence of 2.18 per cent of the 1,788 women examined.

Of these 105 patients, 35 presented a definite clinical picture of secondary, tertiary or latent syphilis. The remaining 70 patients were tested a second time and all responded positively in the second tests. All the blood specimens were sent to the laboratory identified only by a key number, so that the laboratorian did not know that previous reports were being checked.

Every effort was made to exclude false positives. One patient with advanced diabetes mellitus and one with advanced pulmonary tuberculosis were excluded from our group of positives, although both had four plus positive reactions.

A diagnosis of congenital syphilis could be positively established in only four of our patients. This is almost certainly erroneous and it is highly probable that a number of cases classified by us as latent or concealed syphilis were of congenital origin.

Two of the 105 patients, 1.9 per cent, had secondary manifestations of syphilis; thirty, 28.5 per cent, tertiary manifestations; seventeen, 16.1 per cent, neurosyphilis; and twenty-five, 23.8 per cent, vascular syphilis. Twenty-seven, 25.7 per cent, were classified as having latent syphilis. The latter group consisted of patients in whom no positive stigmas of the disease could be demonstrated but who had four plus positive Wassermann and Kahn blood reactions determined by the method described. Kolmer has recently said that "positive serum reactions are sometimes the only definite evidence of syphilitic infection and are not infrequently the sole means for detecting syphilis in its chronic and concealed stages." Patients of this type often present most difficult diagnostic problems. In the majority of instances their complaints are vague, and gross pathologic changes are not demonstrable by ordinary clinical methods. It is only the positive reaction that points the way to diagnosis. Syphilis must be considered in the presence of any persistent symptom which does not respond to ordinary and usual methods of treatment for that condition, and no physical examination ought ever to be considered complete without serologic tests being made.

There were a number of interesting variations in the serologic reactions. Sixty-nine of our patients showed positive clinical evidence of syphilis but had negative reactions in one or more tests. Twelve who gave a definite history of syphilis and had been treated at one time or another had atypical serologic reactions. Five of the twelve had a four plus Kahn reaction with a Wassermann less than four plus. One had a four plus Wassermann reaction and a two plus Kahn, and the other six had both Wassermann and Kahn reactions of less than four plus.

A third group of thirteen cases gave definite histories of syphilitic infection with previous positive reactions, but the blood tests were negative at the time of our examination. On the basis of clinical observations we were unable to say definitely that a complete cure had been effected in any of these cases and several showed marked clinical improvement when further antisyphilitic medication was administered.

This study has given us an opportunity to observe the reliability of the Kahn reaction. During the past few years numerous articles have appeared which seem to confirm its entire dependability and in our experience Wassermann and Kahn tests agreed in practically 100 per cent.

SUMMARY

The proportion of positive Wassermann reactions in a series of 2,872 patients seen in private practice was 3.65 per cent.

226 Hume-Mansur Building.

6. Hazen, H. H.: Textbook on Syphilis, St. Louis, C. V. Mosby Company **1**: 23, 1919.
7. Oxford Medicine, p. 658.
8. Levin, quoted by Lynch (footnote 5).
9. Browning, C. H.: Brit. M. J. **1**: 77, 1914.
10. Fox, H.: J. Cutan. Dis. **26**: 67, 109, 1908.
11. Machaeras, Athanas: The Question of the Regression of Syphilis and the Change in Its Character, Dermat. Wchnschr. **86**: 605-609 (May 5) 1928.
12. Day, A. B., and McNitt, Willa: The Incidence of Syphilis as Manifested by Routine Wassermann Reactions on 2,925 Hospital and Dispensary Medical Cases, Am. J. Syph. **3**: 595 (Oct.) 1919.
13. Technical assistance was rendered by Mrs. E. M. Trinkley and Mr. John Vie.

THE DIETARY TREATMENT OF PSORIASIS

JAY F. SCHAMBERG, M.D.

Professor of Dermatology and Syphilology, Graduate School of Medicine, University of Pennsylvania

PHILADELPHIA

It is perfectly proper for the medical profession, despite the criticism of quasiscientific laymen, to maintain a scientific reserve and indeed an attitude of incredulity toward alleged facts until indisputably proved. The history of medicine proves that even in the face of this tendency to scientific reservation, premature announcement and acceptance of discoveries and cures by the profession have often led to a later revision of opinion with embarrassment and loss of prestige. Sometimes, however, this tendency is carried too far. It may be recalled that French surgeons, witnessing the terrible loss of life from gangrene and septic poisoning from wounds in the Franco-Prussian War of 1870-1871, uttered a prayer, Would that we had some means of preventing these catastrophes; and yet such a means had been discovered several years before by Lister.

It is a source of astonishment to me that the profession of dermatologists has scrutinized only to an infinitesimal degree the statement of Schamberg, Kolmer, Ringer and Raiziss,[1] made after a long and painstaking research nearly two decades ago, to the effect of the influence of diet on psoriasis. The very laborious,

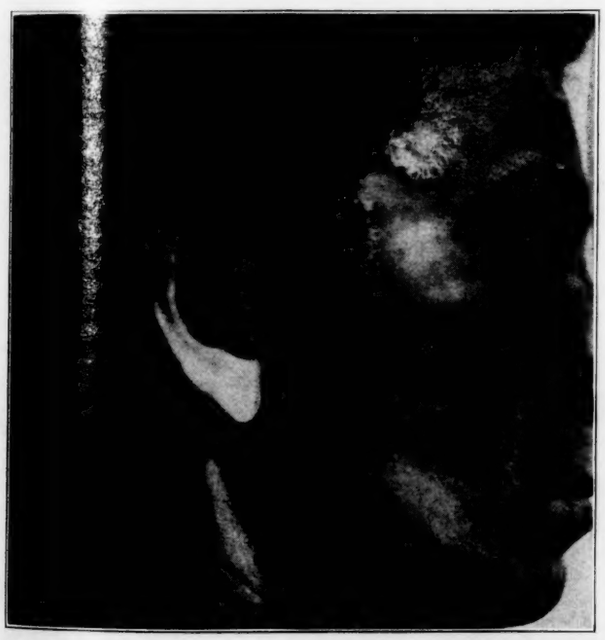


Fig. 1.—Severe psoriasis of face. No treatment was given save diet and the use of petrolatum.

extensive and expensive studies in question resulted in the conclusion that there was a positive nitrogen metabolism in psoriasis. I do not insist that this conclusion should be accepted, as the resultant deductions were contrary to some previously accepted opinions. The work will probably not be repeated because of its arduousness and cost. Accompanying this presentation of the subject was a series of "before" and "after" photographs, however, which constitute to my mind irrefutable documentary evidence of the truth of the statement that a "low protein diet" in the sense in which this term was employed has an enormous influence on the course of the psoriatic eruption.

Within the period of eighteen years that has elapsed since the publication of the "Research Studies in Psoriasis," further evidence has come to me of the verity of the foregoing statement. In only one case of

Fig. 2.—Same patient as in figure 1, showing complete disappearance of eruption on the face after ten weeks of low protein diet.

psoriasis have we not been able to effect a virtual disappearance of the psoriasis eruption by diet. The photographs published in 1913 constitute documents that cannot be denied.

We did not and we do not claim that food is the cause of psoriasis, but we did state that a low protein diet, without any other internal or external treatment, did cause a disappearance of the greater part of the eruption. Furthermore, after the institution of this regimen, which brought the eruption into a stage of quiescence, the skin would tolerate remedies which could not be previously applied. Let me add some evidence not presented in our report.

A young woman art student of Paris had a severe and much thickened psoriasis covering two thirds of the body surface. She placed herself under the care of the leading dermatologist of Paris, who could not accomplish anything with her. She then went to London and was under the care of two able dermatologists there. She then proceeded to New York and was successively under the care of five of New York's best known dermatologists without, however, any change in her condition. She was then sent to us and we placed her under the low protein diet, and within three weeks her skin responded so well that we were able to use a derivative of chrysarobin, which was splendidly tolerated. In a short time she was free from eruption and remained so for eighteen years, when she died of some other cause. We do not contend that such a cure of the disease is the usual outcome of the dietary treatment. I am positive, however, that the "terrain" was so altered that she was able to bear the use of a

1. Schamberg, J. F.; Kolmer, J. A.; Ringer, A. I., and Raiziss, G. W.: J. Cutan. Dis. **31**: 697 (Oct.) 1913.

chrysarobin derivative, whereas previously she could not tolerate weak ointments of sulphonated bitumen. We have had a number of other cases in which utterly refractory eruptions of psoriasis were put in a position to be removed through the initial employment of a dietary regimen.

Fig. 3.—Pronounced psoriasis treated with low protein diet. No internal medication was used and no local treatment save the use of petrolatum.

The illustrations represent a case of psoriasis in which absolutely no treatment was used save diet and petrolatum. It is seen that on the face the eruption completely disappeared, and on the chest the eruption is in a state of involution. It is not claimed that other methods of treatment may not at times clear up the eruption of psoriasis. There are, however, utterly refractory cases that refuse to clear up under any treatment, and in these cases, in over 90 per cent of the patients, the eruption may be made to disappear by a low protein diet. This diet requires hospitalization for from three to four weeks, for the food must be weighed, as the diet is quantitative as well as qualitative. In practice, after the patient is on the diet for one week, we utilize other methods of treatment, as it is no longer necessary to carry out the diet under experimental conditions. We employ autohemic treatments, ointments, and sometimes mercury and arsenic.

In 1924, I [2] called attention to the fact that the first consideration in the treatment of psoriasis should be to bring the eruption into a state of quiescence. By this I mean that no new patches should appear and the old patches should not spread. When this stage is reached, it is easy to effect a disappearance of the eruption in the vast majority of cases by the x-rays and by various other methods of treatment. The significant thing is that remedies previously completely ineffectual now have a pronouncedly favorable effect on the eruption. It is not contended that this method of treatment is a cure for psoriasis. No honest physician can promise to cure psoriasis. Nevertheless, we have had in the course of practice six patients who have had no return of psoriasis for periods varying from two to eighteen years. These successes have not, however, all resulted from the same treatment. With the average case of psoriasis it is not imperative to use the rigid low protein diet. I think that it is helpful to other methods of treatment to eliminate meat, fish, fowl, soups with meat stock, eggs and internal organs from the diet. Many cases will not show good results from this diet and for obvious reasons. With the consumption of considerable food, the patient may ingest a considerable amount of vegetable protein. The ideal diet is the weighed diet.

I have one patient whose psoriasis becomes extremely active when his weight exceeds 150 pounds (68 Kg.); his height is 5 feet 7 inches (170 cm.). Nothing helps him save a rigid diet with a consequent loss of weight.

How can the effect of a low protein diet in psoriasis be explained? There is a rapid growth, proliferation and exfoliation of epidermal cells in psoriasis. For this growth these cells require building material, which can be obtained only from one source—the blood and lymph streams. The principal building material required by these cells is protein. It is at once evident that since these cells are endowed with a powerful "growth impulse" (*wachstumstrieb*) the velocity of their growth will be directly proportional to the amount

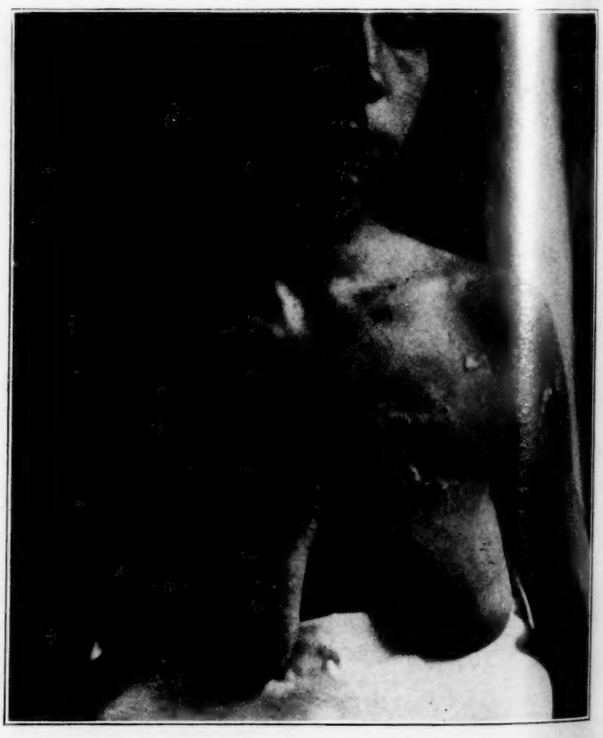


Fig. 4.—Same patient as in figure 3 after dietary treatment for ten weeks. Marked involution of eruption.

of "building material" in the form of protein that is placed at their disposal. A high protein diet is therefore prone to stimulate their growth, because it provides all the necessary components of the epithelial cells. By keeping the patient on a low protein diet, on an amount just enough to cover the body's wear and tear quota, a condition is brought about in which no extra

2. Schamberg, J. F.: The Known and the Unknown About Psoriasis, J. A. M. A. **83**: 1211-1213 (Oct. 18) 1924.

protein can be supplied to the rapidly multiplying cells of the skin. If the "growth impulse" of these cells were not so great, this point would in all probability mark the end of the disease. May it not be possible, therefore, that the rapidly growing cells in psoriasis, like those of malignant growth, have the power of preying on the rest of the body, withdrawing protein from the blood, and that then the blood in turn attacks the protein storehouse—the muscles?

TABLE 1.—*Diet 1*

Food	Amount, Gm.	Nitrogen, Per Cent	Nitrogen, Gm.	Calories
Breakfast				
Bread	20	1.55	0.31	53
Butter	15	0.12	0.02	113
Grape-nuts	10	1.96	0.20	40
Orange	180	0.128	0.23	83
Apple	135	0.064	0.09	77
Tea	125	0.015	0.02	...
Cream	30	0.336	0.10	57
Total			0.97	423
Lunch				
Bread	15	1.55	0.23	39
Butter	15	0.12	0.02	113
Grapes	150	0.208	0.31	129
Lima beans	50	1.21	0.60	37
Turnips	75	0.118	0.09	31
Corn-starch	189	0.065	0.12	297
Potato-cake	300	0.275	0.82	273
Tea	125	0.015	0.02	...
Total			2.21	919
Supper				
Bread	25	1.55	0.39	66
Butter	15	0.12	0.02	113
Prunes	88	0.08	0.07	63
Cauliflower	75	0.338	0.25	22
Corn	100	0.386	0.39	95
Celery	25	0.176	0.06	5
Potatoes	200	0.255	0.51	182
Total			1.69	546
Total for day.			4.87	1,888

I have seen a psoriasis eruption in a physician undergo rapid involution within three days, following enforced starvation consequent on nausea and anorexia due to the administration of morphine for angina pectoris.

TABLE 2.—*Diet 2*

Food	Amount, Gm.	Nitrogen, Per Cent	Nitrogen, Gm.	Calories
Breakfast				
Bread	20	1.81	0.36	53
Butter	15	0.12	0.02	113
Grapefruit	146	0.13	0.19	67
Banana	99	0.208	0.21	87
Puffed rice	10	1.17	0.12	36
Cream	30	0.397	0.12	57
Total			1.02	413
Lunch				
Bread	16	1.81	0.29	42
Butter	15	0.12	0.02	113
Corn-starch	150	0.138	0.21	236
Cabbage	75	0.198	0.15	22
Lima beans	75	0.789	0.59	55
Potato-cake	250	0.323	0.81	277
Total			2.07	695
Supper				
Bread	25	1.81	0.45	66
Butter	15	1.12	0.02	113
Lettuce	25	0.192	0.05	5
Beets	100	0.17	0.17	37
Corn-meal	125	0.246	0.31	188
Prunes	86	0.08	0.07	62
Sweet potatoes	100	0.216	0.22	195
Cream	20	0.397	0.08	38
Total			1.37	704
Total for day.			4.46	1,812

There are a number of published observations recorded by various writers who have seen the disappearance of the psoriasis eruption in patients suffering from acute infections. Commonly the eruption returns after the infectious disease has subsided. I have never observed any harm result from keeping a patient on a very low protein diet for months at a time; the caloric supply should, however, be sufficient to maintain the patient's body weight. Chittendon, a number of years ago, advocated the advisability of keeping individuals on a 6 Gm. level of nitrogen, and Hindhede has shown that nitrogen equilibrium and mental and physical efficiency can be maintained for long periods on diets containing even less nitrogen.

In the accompanying tables are given diets of different type which we have employed in the treatment of patients with psoriasis. They contain from 4 to 5 Gm. of nitrogen and sufficient calories to cover the needs of a man doing a moderate amount of work. For hard-working persons, additional butter and cream can be added. One may allow plenty of sugar, and candy may be permitted between meals. These two diets give an idea of the way dietaries of this nature can be arranged, without losing sight of the necessity of a certain amount of variety in the menu. Oysters and ice cream may be added to the diet, as they contain very little nitrogen.

To meet individual tastes, substitutions can be made. Berries, asparagus, broccoli, pears and like foods may be inserted in the dietary instead of cabbage and turnips and some of the fruits mentioned.

1402 Spruce Street.

CESAREAN UTERINE SUTURES

PASSED FROM THE VAGINA

HARRY S. FIST, M.D.
LOS ANGELES

On Oct. 21, 1931, at the Cedars of Lebanon Hospital, after a test of labor, a low cervical cesarean section was done, because of dystocia due to disproportion, on a primigravida, aged 28, in good general health. Bleeding was profuse, the placenta being located on the anterior aspect of the lower uterine segment. The uterine incision was closed with a first layer of interrupted number 2 chromic catgut sutures, a second layer of continuous number 2 chromic catgut locked suture to stop hemorrhage from the bleeding venous sinuses, and several interrupted sutures.

The daily elevations of temperature are shown in table 1.

TABLE 1.—*Temperature*

Postoperative Day	Temperature
First	99.6
Second	100.6
Third	100.6
Fourth	100.1
Fifth	100.4
Sixth	100.8 *
Seventh	100.6
Eighth	99.8
Ninth	99.6
Tenth	98.6 †
Eleventh	98.6 ‡

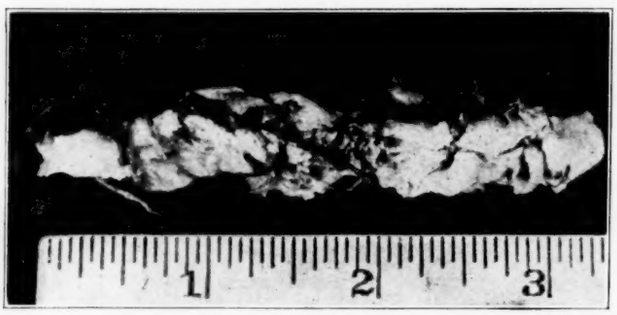
* Highest.
† Subsequent temperatures normal.
‡ Suture expelled.

There was slight tenderness in the region of the incision but no other abnormal manifestations were noted. The lochia was normal. On the eleventh day, which was the second day with a temperature of 98.6 F., the nurse reported that the patient had passed a large piece of pus from the vagina. Inspection proved this to be a soft mass of yellowish tissue, encircled by the interrupted and continuous uterine sutures; in short, the uterine scar.

Read before the Los Angeles Obstetrical and Gynecological Society, Dec. 8, 1931.

This occurrence suggests several problems: Why did the sutures come out? Were they tied too tightly? Were the bites too small? Did interlocking produce too much ischemia? Should a continuous suture ever be used in the uterus? While such men as Munro Kerr,[1] S. S. Rosenfeld,[2] E. B. Piper,[3] and others state that they use the continuous suture, or comment favorably on its use, the use of interrupted sutures seems more logical, as they have less tendency to block the circulation of the enclosed tissues. Therefore, interrupted sutures are preferable unless speed is highly essential because of hemorrhage.

The present condition of the uterine scar and the prognosis during another pregnancy are of great importance. When the specimen was expelled, since the uterus was no longer being held by the sutures, the first impression was that union could not be good and that future pregnancies were absolutely contraindicated; however, just the reverse seems to be the case. In fact, I have reason to feel that the scar in this patient's uterus is probably in good condition. When the uterus contracted in the process of involution, the sutures were evidently pulled out, but at the same time the thickened walls were kept in good apposition and probably healed well. It is possible that, as a result of such thickening, uterine sutures tear out much more often than is



Uterine scar.

realized, good union resulting, nevertheless. Wetterwald [4] reports thirteen repeat cesarean sections, in most of which no trace of the original scar could be found. He reports the incidence of rupture in subsequent pregnancy and labor as from 1 to 4 per cent for the classic section, and 0.28 per cent for the cervical section.

Since this operation was a low cervical cesarean section, the peritoneum was closed over the uterine incision, preventing leakage. Recovery was uneventful and the patient left the hospital on the fourteenth day in a normal condition except for a slight induration of the wound. Bimanual examination at five weeks revealed nothing abnormal, the uterus being in good position, well involuted and mobile.

In a series of seventy-five cesarean section operations at the Cedars of Lebanon Hospital, practically all but 4 per cent exhibited a temperature of 100 F. or over, 33.3 per cent of which were on the first day and 22.6 per cent on the second, decreasing gradually to 1.3 per cent on the fourteenth day. Four per cent of the temperatures of the series reached between 99 and 100, 37 per cent between 100 and 101, 32 per cent between 101 and 102, 16 per cent between 102 and 103, 9 per cent between 103 and 104, and 1.3 per cent between 104 and 105.

In a series of fifty-five cesarean sections at the Los Angeles General Hospital, 3.6 per cent of the patients had postoperative temperatures that ranged between 99 and 100, 22 per cent between 100 and 101, 33 per cent between 101 and 102, 13 per cent between 102 and 103, 13 per cent between 103 and 104, 7.3 per cent between 104 and 105, and 2 per cent between 107 and 108. The highest temperature occurred on the day of operation in 7.3 per cent, on the first day after operation in 14.5 per cent, on the second day in 22 per cent and on the third day in 18 per cent, gradually decreasing to 2 per cent on the seventeenth day.

TABLE 2.—*Day of Highest Temperature in Seventy-Five Cesarean Sections, Cedars of Lebanon Hospital*

	Number	Per Cent
Day of operation	7	9.0
Days after operation:		
First	25	33.3
Second	17	22.6
Third	7	9.0
Fourth	7	9.0
Fifth	6	8.0
Sixth	1	1.3
Seventh	2	2.6
Eighth	3	4.0
Eleventh	1	1.3
Fourteenth	1	1.3

So many convalescents from cesarean section exhibit unexplained elevations of temperature that ischemia and tearing out of the sutures is probably common but remains unrecognized. It may even occur when the temperature is normal. At any rate, the sutures are safer if the following precautions are observed: Sutures should include wide bites of tissue. They should be interrupted, and loosely tied. Fluidextract of ergot or solution of pituitary should be used in small doses only, with the greatest of care. A drain should be used if there is any suspicion of infection.

The occurrence reported here is rather rare, yet it is possible that in many cesarean cases the line of sutures sloughs out entirely or in part without coming to observation. In view of the statement made by DeLee [5]

TABLE 3.—*Day of Highest Temperature in Fifty-Five Cesarean Sections at the Los Angeles General Hospital*

	Number	Per Cent
Day of operation	4	7.3
Days after operation:		
First	8	14.5
Second	12	22.0
Third	0	18.0
Fourth	5	9.0
Fifth	2	3.6
Sixth	4	7.3
Seventh	3	5.5
Eighth	1	2.0
Tenth	1	2.0
Eleventh	2	3.6
Twelfth	2	3.6
Fifteenth	1	2.0
Seventeenth	1	2.0

in 1928, that no case of rupture of the uterus *during pregnancy* after laparotrachelotomy is on record, and only thirteen of rupture during labor; the prognosis for this patient during another pregnancy appears fairly good. Elective low cervical cesarean section should be performed on her before the onset of labor. The condition of the uterine scar at that time would afford much valuable information

1930 Wilshire Boulevard.

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5. DeLee, J. B.: The Practical Medicine Series, Obstetrics, 1928, p. 210.

THE NEED OF LARGER DOSES OF VIOSTEROL IN SEVERE RICKETS (OSTEOMALACIA TYPE)

A COMPARATIVE STUDY OF THE EFFICACY OF VIOSTEROL AND COD LIVER OIL

MARK JAMPOLIS, M.D.
AND
SOL LONDE, M.D.
CHICAGO

Much of the earlier apprehension concerning the toxic effects of viosterol (irradiated ergosterol) has been dispelled by more recent clinical observations. The early reports of A. F. Hess, Lewis and Rivkin,[1] Pfannenstiel,[2] Kreitmair and Moll,[3] Bamberger and Spranger,[4] and numerous others concerning the toxicity of viosterol are too well known to be reviewed at this time. It is questionable how reliable the early clinical observations and animal experiments may be considered, as most of the preparations employed before 1929 were standardized gravimetrically and not biologically, and accordingly could not have been constant in potency. More recent reports of A. F. Hess,[1] J. H. Hess, Poncher, Dale and Klein,[5] Grayzel, Shear and Kramer,[6] and others offer sufficient evidence that viosterol may be given over long periods in doses many times as large as those usually recommended without any danger.

Two brothers of Armenian parentage, one 2 and the other 3 years of age, both suffering from severe advanced rickets (osteomalacia type), offered an opportunity to make comparative clinical studies of the effects of viosterol and 10 D cod liver oil with viosterol. The fact that these children, almost of an age and from the same family under the same predisposing influences, developed almost identical rachitic lesions made conditions ideal for such an investigation.

REPORT OF CASES

CASE 1.—Charles K., aged 2 years, admitted to the Pediatric Department of the Michael Reese Hospital in the service of Dr. Mark Jampolis, Oct. 24, 1930, was a seven months premature infant, weighing 3 pounds (1,360 Gm.) at birth and was kept in an incubator for two weeks. The family history was negative. A detailed account of the mother's diet during her two pregnancies could not be obtained. She drank very little milk. One carious tooth developed during her second pregnancy.

The infant was breast fed for three months and was then given a cow's milk and water mixture. Cod liver oil was started at 3 months, the dosage being increased from a few drops to 3 drachms (11.25 cc.) daily. Cod liver oil and orange juice had not been given since the spring of 1930.

Fig. 1 (case 1).—On admission to the hospital, Oct. 24, 1930, showing marked rickets. The fractures are not clearly distinguishable except on the original films.

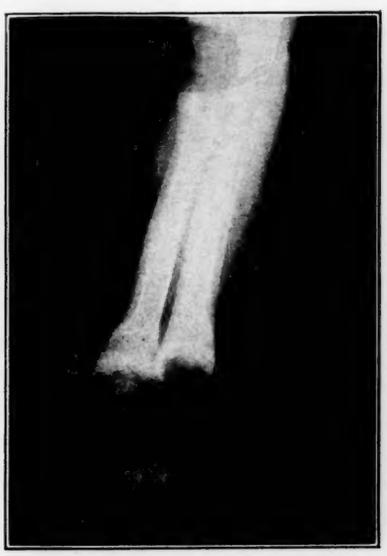

Fig. 2 (case 1).—March 11, 1931, showing first signs of healing. The patient had received the following daily doses: viosterol in oil 250 D, 1 cc. for eighty-five days, and 3 cc. for three days; 1,000 X viosterol, 0.5 cc. for twenty-two days and 1 cc. for twenty-one days.

Fig. 3 (case 1).—June 2, showing almost complete healing. The patient had received, in addition to the doses mentioned in figure 2, 1,000 X viosterol, 1 cc. for thirty-six more days and 2 cc. for twenty-seven days. There had been no treatment for twenty days.

The first tooth appeared at 13 months. The patient sat up at 9 months but had never been able to stand.

The child had been irritable and fretful before admission and perspired a great deal about the head. Two days before his entrance into the hospital he injured his right thigh, the site of injury becoming swollen and tender.

His past history was negative. On admission the baby showed clinical evidences of advanced rickets. The head was large and square, and rachitic rosary and Harrison's grooves were present, the ribs showing a marked flaring. He had the typical pot belly; the epiphyses were enlarged, and there was marked anterior tibial bowing. Swelling and tenderness were noted over the middle third of the right femur. The spine showed a rounded kyphosis in the lumbar region. The patient sat up with difficulty and could not stand. The teeth were normal in number and appearance.

Laboratory examination on admission revealed: serum calcium, 8.2; serum phosphorus, 3.6; Wassermann and Kahn tests, negative; Pirquet test, negative; red blood cells, 4,560,000; hemoglobin, 75 per cent; leukocyte count, 9,000; differential count: polymorphonuclear leukocytes, 65 per

From the Department of Pediatrics of the Michael Reese Hospital.

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2. Pfannenstiel, W.: Lancet **2**: 845 (Oct. 20) 1928.
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5. Hess, J. H.; Poncher, H. G.; Dale, M. L., and Klein, R. I.: Viosterol (Irradiated Ergosterol), J. A. M. A. **95**: 316 (Aug. 2) 1930. Hess, J. H.: Abstr. Am. J. Dis Child. **41**: 1228 (May), **42**: 488 (Aug.) 1931; Tr. Second Internat. Cong. Stockholm, 1930.
6. Grayzel, H. G.; Shear, M. J., and Kramer, Benjamin: Am. Rev. Tuberc. **24**: 106 (Aug.) 1931.

cent; mononuclear leukocytes, 35 per cent. Roentgenograms of the bones showed marked rickets, with multiple fractures, including one of the right femur at the site of injury (fig. 1).

TABLE 1.—*Observations in Case 1*

Daily Dose	Equivalent in 250 D.*	Dates of Administration	Duration of Administration, Days	Serum Calcium	Serum Phosphorus	Calcium × Phosphorus Product	Date	Body Weight
.....	.....	.....	..	8.2	3.6	29.5	10/25/30	
.....	.....	.....	..	8.7	3.4	29.6	10/28/30	20 pounds 1 ounce
1 cc. 250 D...	30 drops	11/1-11/15	14	8.6	3.1	26.7	11/15/30	21 pounds
1 cc. 250 D..	30 drops	11/1-11/24	23	8.6	3.4	29.2	11/24/30	20 pounds, 8½ ounces
1 cc. 250 D...	30 drops	11/1-12/16	46	9.0	2.8	25.2	12/16/30	21 pounds
1 cc. 250 D...	30 drops	11/1/30-1/12/31	73	8.9	2.7	24.0	1/12/31	
1 cc. 250 D...	30 drops	11/1/30-1/24/31	85					
3 cc. 250 D...	90 drops	1/24-1/27	3					
0.5 cc. 1000 X	5 cc. 250 D (150 drops)	1/27-2/18	22	9.6	3.1	29.8	2/18/31	21½ pounds
1 cc. 1000 X..	10 cc. 250 D (300 drops)	2/18-3/11	21	11.1	5.0	55.5	3/11/31†	
1 cc. 1000 X..	10 cc. 250 D (300 drops)	2/18-4/6	47	9.4	5.0	47.0	4/ 6/31	22½ pounds
1 cc. 1000 X..	10 cc. (300 drops)	2/18-4/16	57					
2 cc. 1000 X..	20 cc. (600 drops)	4/16-4/27	11	10.4	6.4	66.5	4/27/31	
2 cc. 1000 X..	20 cc. (600 drops)	4/16-5/13	27	10.0	4.8	48.0	5/13/31	24 pounds
	No therapy	5/13-6/2	20	10.6	5.2	55.1	6/ 2/31	23 pounds, 6 ounces
30 cc. cod liver oil, 30 drops 250 D	1.1 cc. (33 drops)	6/29-10/29	122	12.7	4.3	54.6	10/29/31	

* In the tables, 250 D means viosterol in oil 250 D.
† Roentgenograms showed beginning healing for first time.

The first tooth appeared at 8 months and the infant began to walk at from 9 to 10 months.

When the patient was 20 months of age, it was noticed that his legs were becoming crooked. Four months later he refused to walk, but at the age of 27 months he began to walk again. He was unable to walk very far, however, and limped as if one leg were shorter than the other.

The past history was negative, except for a tonsillectomy at 18 months.

On admission the essential manifestations were those of advanced rickets. The head was large and square, but the fontanels were closed. Marked rachitic rosary and Harrison's grooves were present. The tibia and femur of both legs alike showed marked anterior bowing. The epiphyses were considerably enlarged. The liver edge was palpable two finger-breadths below the costal margin. The development of the teeth was considered normal by the dentist.

Laboratory examination on admission revealed: serum calcium, 8.2; serum phosphorus, 3.8; Wassermann and Kahn tests, negative; Pirquet test, negative; urine, normal; red blood cells, 4,850,000; hemoglobin, 80 per cent; leukocyte count, 8,200; differential count: polymorphonuclear leukocytes, 45 per cent; mononuclear leukocytes, 55 per cent. Roentgenograms revealed marked rickets, no fractures being present (fig. 4).

OBSERVATIONS

The two children were kept in the same ward under identical conditions and were fed the general ward diet. They were not exposed to the sunlight or to the ultraviolet lamp, and were not given calcium medication. Before treatment was begun, two serum calcium and phosphorus determinations[7] and roentgenograms of the long bones were made.

The younger brother was treated with viosterol and the older with 10 D cod liver oil with viosterol. The purpose of our study was to arrive at the optimum dosage of each preparation necessary to produce healing in severe rickets of the malacia type and to determine whether or not the presence of vitamin A in the cod liver oil would lessen the amount of vitamin D needed for a cure. Laboratory determinations and roentgenograms were repeated at intervals of approximately three weeks. The children were observed in the hospital over a period of eight months and in the outpatient department during the last four months.

TABLE 2.—*Observations in Case 2*

Daily Dose	Equivalent in 250 D.	Dates of Administration	Duration of Administration	Serum Calcium	Serum Phosphorus	Calcium × Phosphorus Product	Date	Body Weight
			.....	8.2	3.8	31.1	10/26/30	
			.....	8.8	3.3	29.0	10/28/30	3[illegible] pounds
15 cc. 10 D cod liver oil*	0.6 cc. (18 drops)	11/ 1/30-11/ 8/30	7 days	8.0	...	....	11/ 8/30	31¼ pounds
15 cc. 10 D cod liver oil	0.6 cc. (18 drops)	11/ 1/30-11/17/30	16 days	10.4	3.9	40.1	11/17/30	3[illegible]½ pounds
15 cc. 10 D cod liver oil	0.6 cc. (18 drops)	11/ 1/30-12/16/30	46 days	9.4	3.3	31.0	12/16/30	3[illegible]½ pounds
15 cc. 10 D cod liver oil	0.6 cc. (18 drops)	11/ 1/30- 1/24/31	85 days					
45 cc. 10 D cod liver oil	1.8 cc. (54 drops)	1/24/31- 2/24/31	31 days	8.0	3.4	27.2	2/24/31	31 pounds
45 cc. 10 D cod liver oil	1.8 cc. (54 drops)	1/24/31- 3/11/31	46 days	8.3	3.7	30.7	3/11/31	30 pounds
45 cc. 10 D cod liver oil	1.8 cc. (54 drops)	1/24/31- 3/20/31	55 days					
60 cc. 10 D cod liver oil	2.4 cc. (72 drops)	3/20/31- 4/ 8/31	19 days	9.3	4.3	40.0	4/ 8/31	31 pounds
60 cc. 10 D cod liver oil	2.4 cc. (72 drops)	3/20/31- 4/16/31	27 days					
60 cc. 10 D cod liver oil + 0.5 cc. 1000 X	7.4 cc. (222 drops)	4/16/31- 4/27/31	11 days	9.5	5.0	47.5	4/27/31	34½ pounds
2 cc. 1000 X.....	20.0 cc. (600 drops)	4/28/31- 5/14/31	16 days	10.2	3.6	36.7	5/13/31†	32½ pounds
No therapy.....		5/14/31- 6/ 2/31	19 days	9.9	4.6	45.6	6/ 2/31	34 pounds
30 cc. cod liver oil, 30 drops 250 D	1.1 cc. (33 drops)	6/29/31-10/ 9/31	102 days	10.7	5.4	57.8	10/ 9/31	

* In this table 10 D cod liver oil means 10 D cod liver oil with viosterol.
† Roentgenograms showed beginning healing for first time.

CASE 2.—Norman K., aged 3 years, admitted to the hospital on the same day as his brother, Oct. 24, 1930, was a full term infant delivered by forceps. The condition at birth was good, and the birth weight was 7 pounds 9 ounces (3,430 Gm.).

The baby was breast fed for three months, at which time a complementary feeding of cow's milk was added, the breast feedings being continued until the patient was 1 year old. Cod liver oil was started the third month, the dosage beginning with a few drops and being gradually increased until the patient was getting 3 drachms a day. No cod liver oil or orange juice had been given since the spring of 1930.

7. Determinations were made in the department of chemistry (calcium by the Clark-Collip modification of the Kramer-Tisdall method and phosphorus by the Briggs modification of the Bell-Doisy method).

TREATMENT IN CASE 1

The patient was given 1 cc. (from 30 to 32 drops) of viosterol in oil 250 D daily. After seventy-three days on this dosage, no clinical improvement was noted. Roentgenograms at this time showed not only that healing had not started but also that there were a few additional spontaneous fractures. Serum phosphorus was slightly higher and serum calcium slightly lower than on admission. The other child, on a daily dose of 15 cc. of 10 D cod liver oil with viosterol, held his own during this period, although he showed no improvement. After twelve more days without noticeable improvement, Dr. J. H. Hess [5] suggested that the dosage of viosterol could be safely increased, as he had given doses fifty times as large without toxic effects. The dosage was then increased to 3 cc. daily for three days, after which time the patient was given 0.5 cc. of a special preparation, 1,000 X,[8] possessing ten times the potency of viosterol in oil 250 D. Twenty-two days later no clinical improvement was noted, serum calcium and serum phosphorus were only slightly increased, and there were no roentgenologic signs of healing.

Accordingly, the dosage was increased to 1 cc. (equivalent to 10 cc. of viosterol in oil 250 D) daily and after twenty-one days the roentgenograms showed beginning healing for the first time, and, in addition, both calcium and phosphorus had reached normal levels (fig. 2 and table 1). The child was more active and cheerful, the bone tenderness had disappeared, and the epiphyses were smaller.

Fifty-seven days later the dosage was increased to 2 cc. daily, this amount being continued for twenty-seven days. The roentgenogram revealed almost normal bone structure and the calcium and phosphorus remained high (fig. 3). Viosterol was then discontinued until the child left the hospital three weeks later. On discharge, June 25, 1931, the roentgenograms showed that the bones were almost normal, the fractures were no longer visible, and the tibias had become straight. The child was able to stand but unable to walk. Since leaving the hospital he has received 30 drops of cod liver oil with viosterol 250 D and 2 tablespoonfuls of plain cod liver oil daily. October 29, one year after treatment was started, the child was walking, the bony deformities were no longer present, roentgenograms showed complete healing, and blood calcium and phosphorus were normal.

TREATMENT IN CASE 2

Patient 2 was more active than his brother (table 2). He was given 15 cc. of 10 D cod liver oil with viosterol daily for the first eighty-five days and 45 cc. for the succeeding forty-six days. At the end of this time no clinical evidence of improvement was noted, the serum calcium and serum phosphorus remained at the same low levels and roentgenograms showed that no improvement had occurred.

Nine days later the amount was increased to 60 cc. daily and twenty-seven days on this large dosage did not cause healing, but a slight increase in both calcium and phosphorus was noted. At this time 0.5 cc. of 1,000 X viosterol was added to the 10 D cod liver oil with viosterol. After eleven days he began to show more activity and the serum calcium and serum phosphorus had reached almost normal levels, but roentgenograms still did not show any signs of healing.

The 10 D cod liver oil with viosterol was then discontinued and the child was given the same medication as his brother was receiving, 2 cc. of 1,000 X viosterol. Sixteen days later roentgenograms showed signs of healing for the first time; the calcium had risen slightly, and the phosphorus had fallen a little (fig. 5). All medication was then stopped and three weeks later the calcium was normal, phosphorus slightly below normal, and roentgen examination showed further improvement (fig. 6).

While at home during the summer, this child received the same medication as his brother. On his last examination, October 9, roentgenograms showed

Fig. 4 (case 2).—Nov. 12, 1930, shortly after admission to the hospital, showing marked rickets. The patient had received 15 cc. of 10 D cod liver oil with viosterol for eleven days.

Fig. 5 (case 2).—May 13, 1931, showing first signs of healing. The patient had received the following daily doses: 10 D cod liver oil with viosterol, 15 cc. for eighty-five days, 45 cc. for fifty-five days, 60 cc. for twenty-seven days, and 60 cc. plus 0.5 cc. of 1,000 X viosterol for eleven days, and 2 cc. of 1,000 X viosterol for sixteen days.

Fig. 6 (case 2).—June 2, showing slightly more healing, twenty days after treatment had been discontinued. The healing is still not as marked as in case 1 at this time.

8. Furnished through the courtesy of Mead Johnson & Co., as were all of the preparations used in our investigation.

complete healing, and calcium and phosphorus were normal. The tibial bowing was still quite pronounced and the child walked with a waddling gait.

SUMMARY

1. Two brothers, both suffering from severe rickets (osteomalacia type) which developed in spite of cod liver oil prophylaxis, were studied over a period of eight months in the hospital and four months in the outpatient department. One received gradually increasing doses of viosterol and the other gradually increasing amounts of 10 D cod liver oil with viosterol.

2. The child receiving viosterol showed no response to treatment until the amount given was ten times the dosage usually advocated for the cure of severe rickets.

3. Large amounts of 10 D cod liver oil with viosterol (from 15 to 60 cc.) had no curative effect, after five and one-half months of trial in this severe type of rickets. The child receiving this preparation showed no signs of improvement until an amount of irradiated ergosterol equivalent to 5 cc. of viosterol in oil 250 D was added to the 10 D cod liver oil with viosterol. When cod liver oil was discontinued and 2 cc. of 1,000 X viosterol (equivalent to 20 cc. of viosterol in oil 250 D) was given, roentgenograms showed beginning healing after eleven days.

4. After healing had become established, both children progressed on comparatively small dosages of viosterol and cod liver oil. It was summer, however, and they were exposed to sunlight at frequent intervals.

5. At no time were toxic symptoms observed, even when the dosage of viosterol was twenty times the amount usually recommended.

6. We do not advocate the use of large amounts of irradiated ergosterol indiscriminately, as practically all mild and moderate cases of rickets react to the usual recommended dosages. The cases here reported indicate not only that large doses of viosterol were harmless but that they were necessary to produce healing in our two cases of severe malacia type of rickets.

104 South Michigan Avenue.

Wear and Tear of the Red Cells.—Any one who has seen cinematograph films of the capillary circulation must have been impressed by the wear and tear to which the red cells are subjected. In Peyton Rous's dramatic words, they are finally threshed to bits. The terminal disintegration of the worn-out red cells can be watched under the microscope with the aid of a warm stage: "A red cell puts out a long process and thereby becomes the so-called poikilocyte. At first the process does not move, then it begins to vibrate slowly, then faster and faster. This vibration marks the beginning of fragmentation. As the process vibrates, it gradually becomes thinner and thinner at some point and then separates. If the thinned-out place is at the base of a long process, the fragment becomes a rod, often looking like an irregular but yellow bacillus; if near the tip, it becomes a round or oval body. We have seen every variation in size and shape of these processes, up to an actual division of a red cell into two equal parts. . . . We interpret a poikilocyte as the first stage in the process of fragmentation, and the microcyte, in many instances, as a red cell reduced in size after some of its cytoplasm has broken off."—Witts, L. J.: The Pathology and Treatment of Anemia, *Lancet* **1**:495 (March 5) 1932.

Clinical Notes, Suggestions and New Instruments

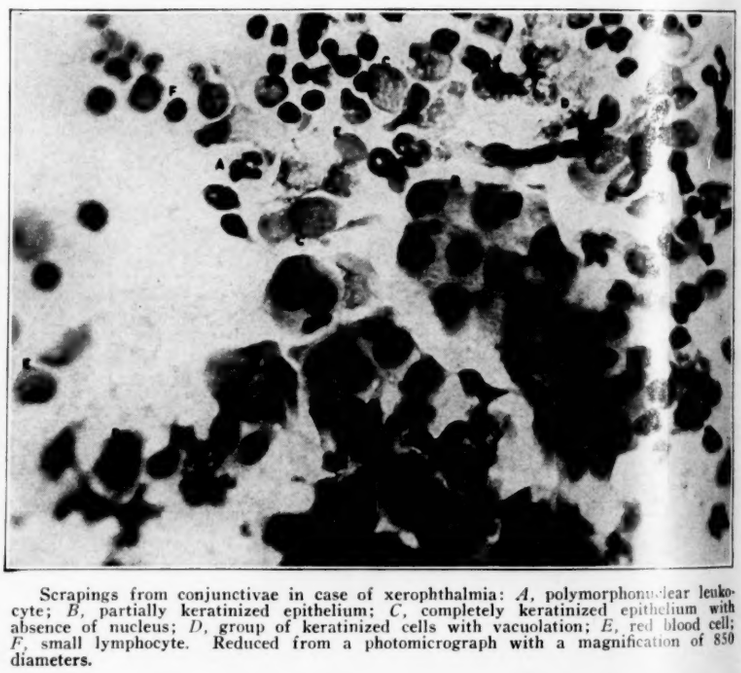
XEROPHTHALMIA: REPORT OF A CASE

WILLIAM THORNWALL DAVIS, M.D., WASHINGTON, D. C.

Mrs. E. S., aged 65, white, American, first seen March 3, 1930, was brought to the office by automobile from about a hundred miles in the country. She was weak and could get up the steps only with assistance. She was unable to open her eyes because of intense photophobia. When the lids were forcibly separated the conjunctivae were seen to be beefy red and chemotic. The central three fourths of each cornea was opaque and mahogany in color, stippled and lusterless. There was an area of clear cornea 2 mm. wide, extending completely around the margin, between the limbus and the central opacity. The vision in each eye was counting fingers at 2 feet.

On the history an immediate tentative diagnosis was made. The patient had always lived on a farm. Her husband died in 1924 of tuberculosis. Shortly after this she went to live with an uncle in Virginia, and later with her sister in Pennsylvania. In 1926 she returned to a small town in Virginia and lived at the village hotel. Until eighteen months prior to admission, she had her headquarters at this hotel but visited about the countryside the greater part of the time. For the eighteen months preceding the onset of her illness she lived entirely at the hotel and was greatly fretted and annoyed by her farm and the business affairs connected therewith. She had considerable financial difficulty at this time and grieved deeply over the loss of her husband. In January, 1930, she began to feel tired; this condition grew worse so that she remained in bed most of the time and rarely or never left the hotel. Until the autumn she had kept raw carrots and celery in her room but neglected it after this period. In February her eyes began to feel sandy and gritty. February 20, she had a "very bad feeling in the head"; on the 21st her eyes pained her severely and she had a temperature of 101 F. She was quite ill in bed with fever for three weeks. After ten days the patient said she became blind. There is no obtainable history of night blindness, since she was not outside her hotel day or night for a long period preceding the onset of her illness.

A medical survey of the patient revealed that she was exceptionally strong and vigorous. Wassermann and Kahn tests



Scrapings from conjunctivae in case of xerophthalmia: *A*, polymorphonuclear leukocyte; *B*, partially keratinized epithelium; *C*, completely keratinized epithelium with absence of nucleus; *D*, group of keratinized cells with vacuolation; *E*, red blood cell; *F*, small lymphocyte. Reduced from a photomicrograph with a magnification of 850 diameters.

Read before the Medical Society of the District of Columbia, Jan. 29, 1931.

were negative; on chemical examination the blood was normal; the kidneys, the heart and the vascular system were normal. In the study of her case there were no pathologic observations.

She was not anemic, having the normal number of red cells and amount of hemoglobin. She had been examined in October, 1929, at the University of Virginia, having entered there for a study because of abdominal pain. A report of the examination was negative with the exception of the absence of free hydrochloric acid in the gastric analysis.

When I saw her, March 3, she had been on local treatment in the hotel with atropine, ethylmorphine hydrochloride and mild silver protein, together with hot applications and rest in bed, with a nurse in attendance. She was sent from my office directly to the hospital with a tentative diagnosis of xerophthalmia and given a solution of ethylmorphine hydrochloride locally and codeine internally when necessary for pain, together with hot fomentations and boric acid solution irrigations at four hour intervals for both eyes. A diet rich in green vegetables and butter fat together with viosterol was ordered. April 4, the photophobia, pain and other subjective symptoms had in a large measure disappeared. The patient was comfortable and happy and could see quite well. For the first time a really satisfactory examination of the eyes could be made. This examination had been attempted heretofore with extreme difficulty on account of the intense photophobia. March 13, ten days after she was first seen, the condition of the eyes was noted as follows:

Right Eye: The palpebral conjunctiva was quite red and succulent looking: the bulbar conjunctiva seemed normal. The lower three fourths of the cornea was hazy with irregular white lines running through it. The central three fourths of the cornea showed a brownish stain. There were superficial blood vessels in the area as in fact over the whole cornea, but in moderate degree. On the nasal side there was a leash of vessels extending on the cornea from the limbus for several millimeters to a grayish superficial opacity, which no doubt had been an ulcer. The upper fourth of the cornea was fairly clear, its surface was stippled, and there were fewer superficial vessels. The anterior chamber and iris appeared normal, though a satisfactory examination could not be made through the semiopaque cornea.

Left Eye: The central three fourths of the cornea was occupied by a dense black opacity. An area 3 mm. in width entirely surrounding the cornea seemed to be clear or but slightly clouded, with superficial vessels from the limbus growing into it. There was a leash of blood vessels growing into the cornea on the nasal side as in the right eye. The conjunctiva presented the same appearance as in the fellow eye. The anterior chamber and iris were apparently normal. The examination with the slit lamp was as follows: The apparently clear marginal area was filled with grayish points and with superficial vessels going to the central brownish area. This area under the lamp was mahogany colored by transmitted light and was so densely stained that the beam of light would not traverse it. The right cornea was more deeply and extensively stained than the left. The deeper structures of the cornea appeared normal.

The patient was discharged from the hospital at the end of the third week with all subjective symptoms relieved and the corneal opacities greatly cleared. Vision in each eye was 20/30 with correction. No doubt there had been either a superficial ulceration of the central portion of the cornea or a beginning necrosis of this region which caused it to take the silver stain. This was also the probable cause of the growth of vessels into the cornea.

October 1, vision of the right eye was 20/20—IV and of the left eye 20/30 with correction. The cornea was still clearing.

The pathologist's report was as follows: "Scrapings from the conjunctiva show many non-nucleated, homogeneous, irregular cells, which undoubtedly represent completely keratinized epithelium. There are also many cells with poorly staining and degenerating nuclei which represent epithelium undergoing keratinization. Red blood cells, polymorphonuclear leukocytes and lymphocytes are also present in abundance, the last predominating in number. Wandering cells, heavily pigmented, are scattered throughout the tissue. Cells with keratohyaline granules are, as well as the granules alone, also in evidence; the former being represented chiefly by cells with vacuolated protoplasm."

It will be noted that only simple treatment was used locally; the main dependence being placed on the diet. Under this regimen within ten days the patient had passed from extreme suffering and weakness with poor vision to comfort and cheerfulness with good vision. The rapidity of the change was remarkable. One could trace it by the hour almost. It was certainly apparent on observation in half day periods.

It is acceptably established that the absence from the diet of fat soluble vitamin A causes xerophthalmia and corneal degeneration in adults and keratomalacia in children. Its absence over long periods also results in deficient growth. There are factors in all probability other than absence of vitamins which cause the tissue changes in the conjunctiva and cornea. The thought occurs that over long periods of time, if a partial deficiency of vitamin A together with a deficiency of salts and other necessary constituents of the diet is continued, far reaching and destructive changes may be wrought.

927 Farragut Square.

AN OPERATIVE PROCTOSCOPE

WELLS TEACHNOR, M.D., COLUMBUS, OHIO
Proctologist, Mount Carmel Hospital

I present this instrument as an improvement of the operative type of proctoscope, to be used for the removal of benign growths, which are all potential cancers, from the rectum below the rectosigmoid. Removal of growths above this area should never be attempted from below. The instrument is especially constructed for room and light, which are essential factors in the use of the snare or cautery. It is made with a large bell shape which gives sufficient room for manipulation of the necessary instruments. The body is 5 inches in length and one-fourth inch in circumference. It is especially useful for the introduction of radium. It should always be introduced with the patient in the knee-chest posture. If the operation requires any great length of time the patient may be returned to the left lateral or Sims position for completion of the work. If the anus and anal canal are irritated and the sphincter spasmodic, 5 cc. of 1 per cent solution of procaine hydrochloride in each anal quadrant assures an easy introduction. It is illuminated by a double Yeomans light and carrier cord. It has been of special value for the purpose indicated in our work.

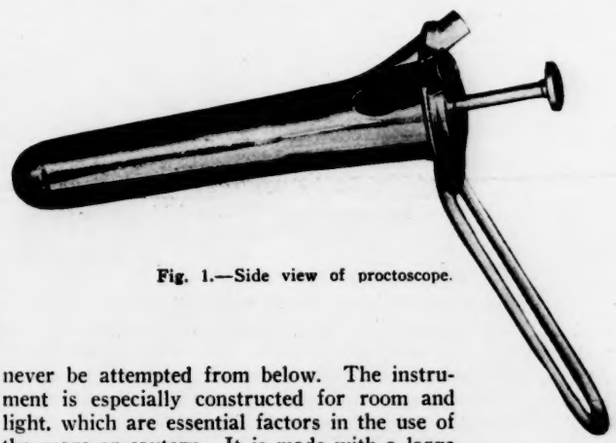


Fig. 1.—Side view of proctoscope.

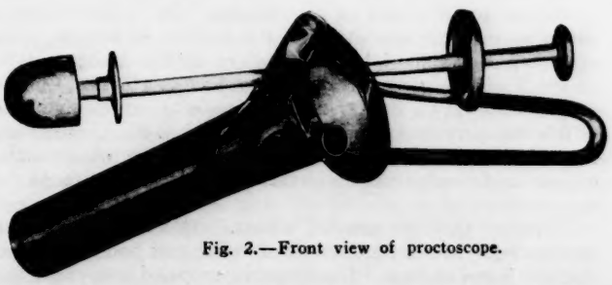


Fig. 2.—Front view of proctoscope.

187 East State Street.

A COMBINED POCKET SKIN-PENCIL AND RULER

HOWARD B. SPRAGUE, M.D., BOSTON

One of the most useful clinical instruments for the demonstration of physical signs in the examination of a patient is a pencil for marking the skin. With it the surface projections of heart, lungs, liver, spleen and other organs can be visualized and measured, as well as areas of percussion dulness from other cause. A ruler for measuring these projections, especially of the heart borders, by palpation and percussion in relation to the midclavicular line, is a valuable addition and is in routine use in many clinics. Such a ruler should be at least 20 cm. long for the measurement of the length of the clavicle and this makes it inconvenient for pocket use. Folding rulers are easily lost when carried upright in the pocket.

Combined pocket skin-pencil and ruler.

The instrument shown in the accompanying illustration, and developed through the courtesy of the Pilling Company of Philadelphia, consists of a round telescoping ruler 21 cm. long when extended. It is graduated in centimeters and half centimeters on one side and inches and quarter inches on the other. Attached at one end of the barrel is a socket which screws into the tube and holds a skin pencil within the barrel. The knob on the other end is used to extend the ruler but might be fitted to carry some other small special instrument such as a needle for testing sensation. When collapsed the instrument is about 13 cm. long, attaches to the pocket with a clip and occupies the space of a medium sized fountain pen. Chromium plating prevents corrosion.

The combined instrument has been found convenient for many clinical measurements not requiring a high degree of accuracy.

270 Commonwealth Avenue.

SCHISTOSOMA HAEMATOBIUM: A SPORADIC CASE IN ILLINOIS

S. J. SULLIVAN, M.D., CHICAGO

The schistosomes are blood flukes affecting as many as 47 per cent of the population in Egypt. South Africa, Japan, China and certain parts of South America are also infested areas. Several cases have been reported in this country in people who have come from the areas mentioned. This case, according to the United States Public Health Service at Washington, D. C., is the first to be reported in a person never having been out of the United States.

One case was reported about a year ago before the Chicago Urological Society by Drs. Harry Culver and Walter Hoeppner. Their case occurred in a laborer who came from South Africa in the advanced stages of the disease. Dr. Culver gave an extensive urologic discussion of the bladder at various stages of the disease and of his observations in the bladder in this case. Their case was the first to be reported in Chicago. Girges,[1] of Tanta, Egypt, recently made an exhaustive study of this disease. Several cases are reported in the United States in which the appendix was removed because of abdominal cramps and the organisms were found in the more or less normal appendix.

The adult parasites are flat worms, long and narrow, having two suckers, one located at the anterior end and one a short distance posterior to it. The intestinal tracts of both are definite under the microscope. The male is about three-eighths inch long or about one-half the length of the female but is considerably broader. The generative organs of each are definite.

The eggs, which are laid in the bladder wall, are excreted in the urine along with blood. These are yellowish brown and have a definite terminal spine. They are the most diagnostic manifestations in all cases. The eggs, on reaching water, become swollen and a miracidium escapes.

The miracidium is simple in structure, being ovoid and surrounded with cilia. It lives from thirty to forty hours before entering its host, a snail, found in stagnant water in the areas previously mentioned. After entering the mollusk, the miracidium develops into a sporocyst from which, through asexual reproduction, more sporocysts are formed. Then a new sexual generation takes place and numerous bifid-tailed cercariae develop. These later escape through the soft tissues of the snail and swim out to attack the human host.

The cercariae have an elongated oval anterior portion and a posterior portion of nearly the same length, which is a thin tail definitely forked on the end. There are two suckers on the body. The anterior or oral and the posterior or ventral sucker is a little posterior to the middle of the anterior portion. The intestine is easily traceable. The cercariae attach themselves to the human mucous membrane or die in from thirty to forty hours.

The cercariae enter the human system through the mucous membrane and are carried to the right side of the heart and thence to the lung, where as in this case they undoubtedly caused suspicious symptoms. Later they are carried to the portal system, where they mature into the adult worms described and complete a rather complex life cycle.

REPORT OF CASE

A boy, aged 4 years, was born in northwestern Missouri a healthy baby and moved to Chicago with his parents three weeks later. Since that time he has never been more than 100 miles away from this city and then only for a trip of a day or two. He had the usual childhood diseases, including whooping cough.

Aug. 20, 1931, I was called to see the boy, who presented typical symptoms of an early whooping cough. I prescribed a soothing cough syrup, which was useless. A week later, urinary symptoms developed consisting of frequency, tenesmus, and straining to a marked degree. A specimen was taken the following day, and in eight voidings only an ounce of urine was collected. Examination of this showed macroscopic and microscopic blood, some yeast spores and a terminal spined, yellowish egg. At this time a positive diagnosis was not made and methenamine and oil of sandalwood were prescribed. Another specimen revealed three adult worms and many eggs.

By this time the diagnosis was quite clearly parasitic, which I was reluctant to diagnose as schistosomiasis. During this lapse of time the coughing symptoms improved but the bladder symptoms became worse, and on September 16, nightly abdominal cramps started. These cramps caused rigidity, a rise in temperature, a doubling up of the patient and vomiting. The white count at this time was only 9,000. September 18, an intravenous injection of a colloidal silver preparation was given. September 22, antimony and potassium tartrate was started intravenously with one-fourth grain (0.016 Gm.) and continued five days a week, the fourth dose being increased six-tenths grain (0.038 Gm.). The abdominal cramps became less severe after the third injection and stopped entirely after the fifth injection, as did the coughing. The larger doses of antimony and potassium tartrate, although injected very slowly, caused coughing and vomiting for from five to thirty minutes after the injection. After the sixth injection, only three a week were given, and on days when injections were not given 1 Gm. of 10 per cent metallic antimony ointment was rubbed into the skin for twenty minutes. Organisms in the urine became rare, and no eggs were found after the eighth injection of antimony and potassium tartrate. Blood counts taken about this time revealed: erythrocytes, 4,980,000; leukocytes, 10,450; small lymphocytes, 54 per cent; transitionals, 4 per cent; polymorphonuclear neutrophils, 38 per cent; eosinophils, 3 per cent; basophils, 1 per cent.

About October 19, the patient was back to his normal weight of 44 pounds (20 Kg.), and the urine was negative for parasites. Two injections and two antimony rubs a week were continued for two weeks, although symptoms had subsided. The patient then received one injection of three-eighths grain (0.024 Gm) of antimony and potassium tartrate and two antimony rubs a week for three weeks.

After considerable investigation to determine the source of the infection, an aquarium was found in which some tropical fish were kept, and among these were found snails that closely

Read before the Jackson Park Hospital Staff, Chicago, Nov. 5, 1931.

1. Girges, Rameses: Schistosomiasis vel Bilharziasis Haematobium or Urinaria, Urol. & Cutan. Rev. **35**: 651 (Oct.) 1931.

resembled descriptions of the intermediary host of the snail Bullinus. Examination of the water from the fish bowl showed fully developed cercariae, the stage of the parasite which infects man. This gives definite proof of the origin of the infection.

2630 East Seventy-Fifth Street.

THE PREVENTION AND TREATMENT OF ABDOMINAL WALL EXCORIATION IN GASTRIC AND INTESTINAL FISTULAS BY COPPER BRONZING POWDER

W. F. CUNNINGHAM, M.D., NEW YORK

The advances that have been made in the prevention and treatment of abdominal wall excoriation in gastric and intestinal fistulas have taken place since 1921. Prior to that date and extensively since, ointments have been in vogue and with negligible beneficial results.

In 1927 and again in 1929, Potter[1] described the use of tenth-normal hydrochloric acid with beef juice associated with the feeding of from 4 to 6 ounces of boiled milk every four hours. In 1921 Erdman[2] described an effective method of siphonage. Smith and Christensen[3] in 1926 described the use of kaolin and glycerin. This work was confirmed in 1930 by Co Tui,[4] who treated thirty-one intestinal fistulas with satisfactory results by the use of dry kaolin. When beef juice and tenth-normal hydrochloric acid were used, dressings were necessary every two hours; likewise with kaolin or kaolin and glycerin, dressings must be changed every five or six hours according to the methods described.

In the First Surgical Division of Bellevue Hospital we have had no experience with kaolin, and in only one instance was a modified Potter method used. This was a duodenal fistula following a perforated ulcer which healed spontaneously.

Since April, 1931, however, we have been using copper bronzing powder, which in reality is pure electrolytic copper and is known to the trade as 180 to 200 mesh. It contains traces of stearate, which is used in lubrication, and iron, which results from the grinding. It is used as a dry powder or in suspension. Many of the commercial varieties obtained in paint shops contain other ingredients and their use is interdicted. In powder form or in suspension we know from our experience that we can prevent excoriation of the abdominal wall and can in some instances clear up established excoriation in from twenty-four to forty-eight hours. In contrast to this, Smith and Christensen refer to the skin appearing normal in ten days. Moreover, we know that one application of the suspension may last for several days. It is time saving, requires no dressings or nightly attention, is antiseptic, and from authority one learns that in pure state this element is not poisonous. Miners[5] have worked for generations in the Tyneside copper mines and no cases of poisoning have been reported. Green hair and deposits of greenish tartar on the teeth have been recorded. Also long after death from other causes the skeletal system remains green, so that large amounts of copper may be stored in the organism without deleterious effects.

PREPARATION AND TECHNIC

The technic is simple. The copper is applied to the skin around the fistula as a dusting powder, being rubbed in thoroughly with the finger or cotton applicator, or a suspension is made up in bronzing liquid, one part of copper being used to about six of the suspending agent. This is painted on and dries in from one to two minutes. Venus bronzing liquid was selected as the suspending agent after many other combinations of varnish, drier and linseed oil were tried, because it is nonirritating and dries rapidly. The skin should be dry and meticulous care should be taken not to have any intestinal secretions pent up under the application. When the skin is not excoriated, copper suspension is indicated. If excoriation is present the powder is advisable until healing has taken place, following which the suspension is used. In addition, we use the cradle with electric lights, mopping with gauze or syringe siphonage when the secretion is copious, and occasionally the duodenal tube when there is extensive loss of fluid.

Our experience is limited to nine cases: two postoperative accidental fistulas, one gastrostomy with soiling, Janeway technic, two therapeutic jejunostomies, two postoperative biliary fistulas and two fistulas of the small intestine with no untoward effects. One of these patients died from pneumonia, one fistula of the small intestine was repaired by operation, and the others with the exception of the gastrostomy healed spontaneously.

Fistulas of the gastro-intestinal tract may heal spontaneously, while the skin is being treated with various applications and abdominal wall excoriation may be prevented. The particular advantage derived from effective antiexcoriants is the retention of normal skin while the fistula is healing or the patient is undergoing supportive measures for future operative intervention. Pure copper bronzing powder of from 180 to 200 mesh is an extremely useful medium in the prevention and treatment of excoriation in fistulas of the gastro-intestinal tract.

654 Madison Avenue.

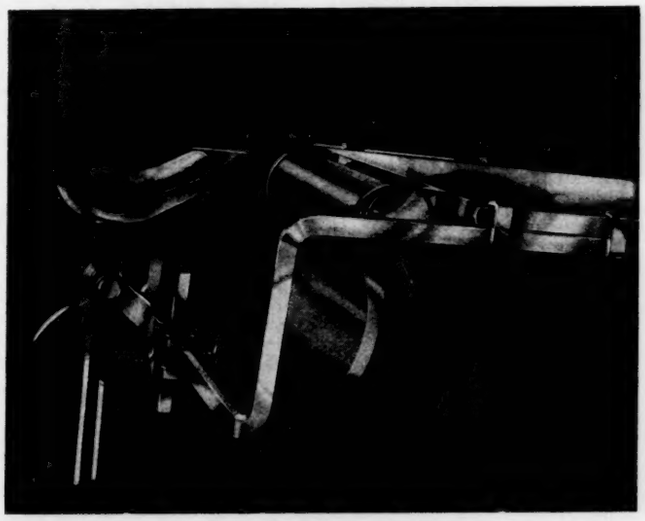
From the First Surgical Division, Bellevue Hospital.

1. Potter, Caryl: The Treatment of Duodenal Fistula, J. A. M. A. **88**: 899 (March 19) 1927; Treatment of Duodenal and Fecal Fistula, ibid. **92**: 359 (Feb. 2) 1929.
2. Erdman, Seward: Ann. Surg. **73**: 793, 1921.
3. Smith, J. F., and Christensen, H. H.: Surg., Gynec. & Obst. **43**: 701 (Nov.) 1926.
4. Co Tui, F.: Ann. Surg. **91**: 123 (Jan.) 1930.
5. Allbutt, in Rolleston: System of Medicine.

HEAD REST FOR EXPOSURE OF THE CEREBELLUM

PERCIVAL BAILEY, M.D., CHICAGO

Various contrivances have been devised to support the head in the face-downward position necessary for the surgical exposure of the cerebellum. Finding all of them with which I was familiar to be either too complicated or not sufficiently adaptable, I explained their defects to Mr. G. F. Linde of the Scanlon-Morris Company, who devised the head rest which I now have. The suggestion of several of my friends that its principle might be generally useful has prompted me to publish this brief note.



Head rest for exposure of the cerebellum.

Essentially, the head rest consists of a steel supporting frame, with brackets fitting over the side rails of an operating table, to which is attached a horseshoe shaped cupped steel rest. The rest is molded to fit the face and forehead comfortably, and the slotted opening allows the anesthetist free access to the mouth and nose of the patient. In these respects the head rest differs little from others in use. The essential improvement lies in the method of attaching the rest to the frame by means of a sliding mechanism, working through a bracketed friction clutch, locked in all positions by a lever handle.

The cerebellum is most easily exposed by keeping the head flexed forward to the fullest extent, but, when it is desired to close the wound, this is accomplished most easily by flexing the head far backward on the neck. However, this cannot be done simply by tilting the head backward. In this maneuver the face is projected forward and hence necessitates a shifting forward of the head rest. The sliding mechanism of this head rest permits this alteration of the position of the head to be made by loosening and tightening a single clutch.

950 East Fifty-Ninth Street.

Special Article

DIPHTHERIA MORTALITY IN LARGE CITIES OF THE UNITED STATES IN 1931

NINTH ANNUAL REPORT

This report concerns the ninety-three cities dealt with in the recent article on typhoid,[1] and the rates are calculated on the basis of the population figures used in that article. The number of diphtheria deaths in each city has been reported to us by the respective health department.[2]

Although with diphtheria the problem of nonresident deaths is perhaps less serious than with typhoid, in which the total number of deaths dealt with is not so great, there is nevertheless evidence that in some localities the relatively high proportion of deaths from diphtheria among nonresidents may confuse the picture. During 1931 in several cities (New Haven, Bridgeport, Miami, Des Moines) the only reported deaths from diphtheria were said to be those of nonresidents. A number of other cities are said to have had to

TABLE 1.—*Death Rates of Cities in New England States from Diphtheria (Including Croup) per Hundred Thousand Population*

	1931	1930	1925–1929	1920–1924	1915–1919	1910–1914	1905–1909	1900–1904	1895–1899	1890–1894
Waterbury	0.0	3.0	2.6	17.9	23.0	29.6	....	....	....	....
New Haven	0.6*	0.6	1.6	7.1	14.2	14.9	22.7	15.6	54.8	74.5
Cambridge	0.9	0.9	3.2	8.9	12.9	23.8	25.3	46.7	71.9	58.0
Bridgeport	1.4†	1.4	11.8	19.6	23.4	23.3	26.8	34.2	63.9	79.3
Hartford	2.4*	1.2	5.3	11.9	13.8	25.3	28.1	38.8	47.8	120.9
Springfield	2.6	5.3	10.3	15.4	24.9	19.1	31.3	29.6	51.3	68.2
Lynn	3.9	10.7	13.5	17.0	17.8	17.2	21.7	38.0	44.0	49.0
Worcester	4.0	1.5	8.6	15.5	14.1	21.3	32.2	16.5	50.3	47.8
Boston	4.7†	2.9	8.3	20.2	26.3	20.0	26.2	53.7	83.9	112.2
Lowell	5.0	4.0	10.6	16.7	23.5	20.6	31.0	59.3	44.3	36.4
Somerville	5.7	26.9	5.7	19.7	20.2	21.4	21.5	40.5	57.8	37.4
Fall River	7.1	3.5	12.0	25.5	23.6	24.0	34.4	50.1	43.8	46.9
New Bedford	8.0	8.0	10.9	16.5	17.0	20.9	22.6	25.1	53.6	20.0
Providence	9.8†	7.9	9.5	15.8	29.3	26.8	30.7	41.2	53.5	55.3

* The one diphtheria death in New Haven and the four in Hartford were stated to be in nonresidents.
† One third or more of the reported diphtheria deaths were stated to be in nonresidents.

count one third or more of nonresidents among their diphtheria fatalities. It is, of course, true that as the total number of deaths drops in any disease the nonresident factor will have a more and more disturbing effect on the rates as ordinarily calculated.

The New England cities (table 1) have again had a satisfactory year, three of them reporting not a single resident death from diphtheria and every city in the group maintaining a rate below 10. Boston shows some increase over its remarkably low rate for 1930 but is still well under all its previous five year averages. One third or more of the reported diphtheria deaths in Boston were stated to be those of nonresidents. The city of Waterbury, Conn., has the proud distinction of not having had a single death from either diphtheria or typhoid within its borders during the year 1931. The group of New England cities as a whole shows the lowest mortality rate yet reached for this geographic division.

The cities in the Middle Atlantic states (tables 2 and 13) had a banner year, only one of the eighteen cities (Albany) having a higher diphtheria mortality in 1931 than in 1930. New York and Philadelphia again make new lows. Only three of the cities in this group had a rate above 5. The rate for the Middle Atlantic group as a whole was less than one third of the

TABLE 2.—*Death Rates of Cities in Middle Atlantic States from Diphtheria (Including Croup) per Hundred Thousand Population*

	1931	1930	1925–1929	1920–1924	1915–1919	1910–1914	1905–1909	1900–1904	1895–1899	1890–1894
Syracuse	0.5	0.9	2.0	22.9	12.9	16.6	17.4	17.7	31.1	55.4
Rochester	0.6*	1.5	7.5	16.9	12.7	22.1	32.4	32.3	45.9	96.6
Yonkers	0.7	1.5	10.4	17.0	17.7	25.3	....	....	....	....
Reading	0.9	3.6	7.3	21.1	16.9	35.7	29.2	70.1	72.0	94.1
Scranton	1.4	2.1	11.7	12.3	22.1	23.4	....	....	77.8†	48.6†
Philadelphia	1.5	2.5	11.8	16.7	22.7	24.6	34.1	50.0	100.6	119.4
Utica	1.9	2.0	13.4‡	....	....	....	....	....	....	....
Erie	2.5	3.4	5.8	16.8	15.1	17.7	27.1	42.3	23.1‖	....
New York	2.6	2.9	10.7	14.0	21.8	28.0	40.0	58.0	85.8	134.4
Newark	3.6	10.8	14.5	9.7	14.6	23.3	30.1	46.7	79.1	110.4
Jersey City	4.1	16.1	11.5	18.4	21.0	23.2	32.6	57.9	85.4	108.6
Pittsburgh	4.1	8.5	11.5	20.1	22.3	29.3	20.4	36.9	32.9	86.4
Elizabeth	4.3*	14.8	13.2	19.2	19.3	14.8	51.7	42.4	60.5	79.3
Albany	4.6	3.1	7.5	12.8	10.4	20.0	31.6	26.9	....	....
Trenton	4.8*	5.7	4.4	7.3	8.8	12.3	15.8	23.6	92.7†	89.7†
Paterson	5.8	8.7	9.1	18.5	13.5	16.1	25.5	52.9	111.8	145.4
Buffalo	6.2	8.7	9.1	24.0	27.3	22.0	18.4	24.8	53.5	60.9
Camden	9.2*	11.8	21.9	20.3	23.2	38.8	48.9	52.6	93.8	104.0

* One third or more of the reported diphtheria deaths were stated to be in nonresidents.
† Diphtheria deaths from Chapin's Municipal Sanitation.
‡ Lacks data for 1925.
‖ Lacks data for 1895.

1925-1929 average (9.97) and was practically the same as that for the cities of the Mountain and Pacific group with their generally salubrious climates.

The cities of the South Atlantic states (table 3) have not come off as well in 1931 as in 1930, five of the nine cities showing an increase, which is especially marked in the case of Norfolk and Washington. Norfolk, indeed, seems to be having more diphtheria than at any time since 1915. Wilmington shows some improvement. The group as a whole records an increase as compared with the 1930 figures.

TABLE 3.—*Death Rates of Cities in South Atlantic States from Diphtheria (Including Croup) per Hundred Thousand Population*

	1931	1930	1925–1929	1920–1924	1915–1919	1910–1914	1905–1909	1900–1904	1895–1899	1890–1894
Miami	0.9*	3.6	5.4†	....	....	....	....	....	....	....
Jacksonville	2.3‡	5.4	6.0†	....	....	....	....	....	....	....
Baltimore	2.8	2.5	7.6	11.4	13.5	14.2	16.1	33.0	68.1	70.0
Atlanta	3.2‡	1.1	7.0	13.3	10.1	12.5	14.2	11.1	10.5	8.8
Tampa	3.8	3.0	4.6	5.2	9.5‖	....	....	....	....	....
Richmond	5.4‡	5.5	6.9	9.8	5.8	7.0	9.8	24.4	17.6	59.7
Wilmington	6.6‡	10.3	10.9	11.6	15.2	18.0	27.8	50.9	84.9	83.8
Washington	7.1	3.7	7.1	10.5	11.9	6.9	11.2	23.5	50.9	77.9
Norfolk	9.2‡	6.2	4.1	4.3	4.1	6.7	17.0	....	....	....

* The one diphtheria death reported in Miami was stated to be in a nonresident.
† Lacks data for 1925.
‡ One third or more of the reported diphtheria deaths were stated to be in nonresidents.
‖ Lacks data for 1915 and 1916.

The East North Central group (table 4) shows a high proportional decrease, apparently largely due to the great improvement in Detroit and Chicago over the preceding year. Both these cities approximately halve their 1930 rates. The other cities, however, have also done well, only four of the remaining sixteen showing an increase in 1931. The remarkable improvement in Detroit deserves especial notice, since prior to 1930 diphtheria seems to have been excessively prevalent in that municipality. Cleveland also achieves the excellent

The preceding articles were published in THE JOURNAL, Sept. 20, 1924, p. 918; April 25, 1925, p. 1269; April 3, 1926, p. 1005; April 30, 1927, p. 1396; May 19, 1928, p. 1621; May 25, 1929, p. 759; June 7, 1930, p. 1838; May 23, 1931, p. 1768.

1. Typhoid in the Large Cities of the United States in 1931, J. A. M. A. **98**: 1550 (April 30) 1932.

2. It should be noted that the figures include all deaths of diphtheria that have occurred within the city limits, of nonresidents as well as residents. In some instances this undoubtedly gives an exaggerated impression of the amount of diphtheria in a community, but at present statisticians are agreed that "the attempt to eliminate the deaths of nonresidents would often result in an understatement of the true mortality" (Bureau of the Census, Mortality Statistics, 1912, p. 13). Cities in which one third or more of the reported diphtheria deaths are stated to have occurred in nonresidents are indicated in tables 1-8.

rate of 1.2 for 1931 as contrasted with its 1925-1929 average of 15.3.

The East South Central cities (table 5), like those in the South Atlantic group, did not have a good diphtheria year in 1931. Four of them experienced a marked increase in diphtheria mortality, sufficient to overcome the improvement in Birmingham and Nashville and to give this group as a whole the highest diphtheria mortality in the country. This presents a marked contrast to the 1925-1929 period, when this group stood second best on the list (table 13).

TABLE 4.—*Death Rates of Cities in East North Central States from Diphtheria (Including Croup) per Hundred Thousand Population*

	1931	1930	1925–1929	1920–1924	1915–1919	1910–1914	1905–1909	1900–1904	1895–1899	1890–1894
Grand Rapids	0.0	0.6	2.0	19.6	13.5	20.0	26.6	17.2	32.4	99.2
Canton	0.9	1.9	2.9	17.5	15.1*	....	....	....	....	....
South Bend	0.9	5.8	....	....	....	....	....	....	....	....
Akron	1.1	3.1	4.9	10.4	18.9	27.8	21.8†	....	....	....
Cleveland	1.2	4.1	15.3	14.7	20.0	24.6	20.8	42.6	45.3	95.7
Milwaukee	1.8‡	3.6	8.5	11.4	19.8	27.8	26.4	22.7	51.7	116.2
Peoria	1.8	5.7	4.9	7.4	10.8	10.6	10.9‖	14.0	14.6	68.0
Evansville	1.9	3.9	3.7	13.9	14.9	16.1	21.2	13.8	18.1	69.7
Cincinnati	2.0	2.9	5.2	10.6	13.2	13.9	17.0	17.3	37.3	103.7
Dayton	2.1	0.5	4.6	9.4	9.3	22.1	13.3	17.2	27.4	82.9
Indianapolis	2.4	3.6	6.6	11.7	21.4	13.5	13.3	15.9	36.4#	97.3¶
Youngstown	2.9	6.5	10.5	18.5	11.9	40.5	33.5	28.0	17.6	28.4§
Flint	3.0‡	0.0	4.5	29.9	25.5	12.7	11.0	16.8	6.9	69.2
Columbus	3.4	3.4	4.6	8.5	7.6	12.1	10.5	11.6	28.5	56.9
Fort Wayne	4.2	0.9	5.1	13.1	6.3	....	....	....	....	....
Toledo	5.0	2.4	7.2	22.4	14.1	25.4	20.4	56.8	34.6	89.3
Detroit	5.8	11.0	19.7	24.3	32.2	33.3	22.6	38.5	62.9	132.9
Chicago	6.2	12.2	11.7	17.5	31.2	37.9	27.0	33.9	69.7	117.3

* Lacks data for 1915.
† Data for 1909 only.
‡ One third or more of the reported diphtheria deaths were stated to be in nonresidents.
‖ Lacks data for 1907, 1908 and the first four months of 1909.
Diphtheria deaths from Chapin's Municipal Sanitation.
¶ Lacks data for 1890.
§ Data for 1893 and 1894 only.

TABLE 5.—*Death Rates of Cities in East South Central States from Diphtheria (Including Croup) per Hundred Thousand Population*

	1931	1930	1925–1929	1920–1924	1915–1919	1910–1914	1905–1909	1900–1904	1895–1899	1890–1894
Birmingham	3.7	7.7	5.4	5.3	7.2	8.3	6.2	13.4	16.5	26.3
Louisville	3.9	1.6	4.6	10.4	9.5	9.0	....	....	39.0*	49.6†
Nashville	6.4‡	11.7	11.8	8.0	8.9	7.3	10.3	13.9	30.1	28.4
Chattanooga	9.8	1.7	5.9	8.7	8.9	....	....	....	....	....
Memphis	10.8‡	4.7	5.8	9.5	11.2	11.9	13.4	6.9	10.0	28.5
Knoxville	11.0	2.8	6.3	11.2	....	....	....	....	....	....

* Diphtheria deaths from Chapin's Municipal Sanitation.
† Lacks data for 1890. Diphtheria deaths from Chapin's Municipal Sanitation.
‡ One third or more of the reported diphtheria deaths were stated to be in nonresidents.

TABLE 6.—*Death Rates of Cities in West North Central States from Diphtheria (Including Croup) per Hundred Thousand Population*

	1931	1930	1925–1929	1920–1924	1915–1919	1910–1914	1905–1909	1900–1904	1895–1899	1890–1894
Duluth	0.0	1.0	2.0	6.0	10.2	8.8	38.2	29.1	7.6	49.5
Des Moines	0.7*	2.1	5.2	15.1	16.6	15.1	23.8†	....	....	....
St. Paul	1.1	2.2	5.2	17.5	20.7	31.4	31.1	27.9	43.3	75.4
Minneapolis	2.7	2.4	11.9	13.4	19.9	28.3	24.4	44.6	34.0	55.0
Kansas City, Mo.	3.9	4.0	4.7	14.4	22.8	15.7‡	....	....	....	....
Kansas City, Kan.	4.1	4.9	4.6	9.8	23.1	12.4‡	....	....	....	....
St. Louis	4.6	5.1	10.3	16.1	24.4	23.7	19.4	43.3	62.9	67.7
Wichita	5.2	3.6	4.2	....	....	....	....	....	....	....
Omaha	8.3	4.7	6.4	22.9	35.8	15.8	24.5	20.5	28.2	82.9

* The one diphtheria death in Des Moines was stated to be in a nonresident.
† Data for 1909 only.
‡ Lacks data for 1910 and 1911.

The West North Central cities (table 6) have maintained rates similar to those for 1930, although Omaha and Wichita record an increased mortality. The group as a whole has had almost exactly the same rate in 1931 as in 1930.

The West South Central cities (table 7) show some improvement except in two instances (Fort Worth, Tulsa). Tulsa seems to be having an unusual prevalence of the disease, if the mortality is a correct reflection of the morbidity. New Orleans in this group makes a particularly excellent record.

TABLE 7.—*Death Rates of Cities in West South Central States from Diphtheria (Including Croup) per Hundred Thousand Population*

	1931	1930	1925–1929	1920–1924	1915–1919	1910–1914	1905–1909	1900–1904	1895–1899	1890–1894
New Orleans	3.8*	8.5	8.5	6.5	11.6	19.6	10.2	11.5	17.1	51.3
Houston	3.9	4.1	8.2	6.4	6.1	7.8	10.5	4.2†	2.4	1.8
Oklahoma City	5.1	7.0	10.9	....	....	....	....	....	....	....
El Paso	5.7*	8.8	7.3	20.0	17.6	29.2	....	....	....	....
San Antonio	6.2	7.3	10.3	7.7	8.7	6.7	7.6	17.1	20.6	4.4
Dallas	6.6	6.9	9.8	8.3	7.4	6.9	8.1	16.9	16.0	21.8
Fort Worth	7.2	4.3	10.8	1.7‡	2.6‖	2.6	2.8	5.4	....	....
Tulsa	15.1	2.1	12.5	8.3#	....	....	....	....	....	....

* One third or more of the reported diphtheria deaths were stated to be in nonresidents.
† Data for 1900 and 1901 only.
‡ Data for 1924 only.
‖ Lacks data for 1918 and 1919.
Data for 1923 and 1924 only.

TABLE 8.—*Death Rates of Cities in Mountain and Pacific States from Diphtheria (Including Croup) per Hundred Thousand Population*

	1931	1930	1925–1929	1920–1924	1915–1919	1910–1914	1905–1909	1900–1904	1895–1899	1890–1894
Salt Lake City	0.0	0.7	10.1	12.5	14.5	15.1	34.2	46.0	14.8	56.7*
Oakland	0.3	3.9	7.4	18.8	8.1	10.3	16.1	29.1	....	....
Seattle	0.3	1.6	1.4	6.6	5.5	5.2	12.5	13.4†	27.2‡	....
Long Beach	0.6	1.4	2.6	10.4‖	....	....	....	....	....	....
Portland	0.6	2.3	6.4	11.3	6.0	12.3	12.2	20.2	....	....
San Francisco	0.8	2.2	4.6	23.0	17.0	9.2	14.4	44.2	21.6	54.8
Spokane	0.8	1.7	7.5	11.3	4.2	7.6	25.8	....	59.5‡	18.1
San Diego	2.5#	2.0	6.6	12.2	10.5	8.0	5.8	2.4	....	....
Denver	4.4	3.5	8.9	23.2	6.7	10.2	20.8	29.6	27.3	130.2
Los Angeles	5.2	5.6	7.0	14.4	7.1	7.5	15.3	25.4	35.8	46.0
Tacoma	8.3#	8.4	9.3	12.4	7.7¶	....	....	....	....	....

* Lacks data for 1890 and 1891.
† Lacks data for 1900.
‡ Diphtheria deaths from Chapin's Municipal Sanitation.
‖ Lacks data for 1920 and 1921.
One third or more of the reported diphtheria deaths were stated to be in nonresidents.
¶ Lacks data for 1915.

TABLE 9.—*Ten Cities with Highest Diphtheria Death Rates for 1931*

Tulsa	15.1	Camden	9.2
Knoxville	11.0	Norfolk	9.2
Memphis	10.8	Omaha	8.3
Chattanooga	9.8	Tacoma	8.3
Providence	9.8	New Bedford	8.0

TABLE 10.—*Eleven Cities with Lowest Diphtheria Death Rates for 1931*

Duluth	0.0	Syracuse	0.5
Grand Rapids	0.0	Long Beach	0.6
Salt Lake City	0.0	New Haven	0.6
Waterbury	0.0	Portland	0.6
Oakland	0.3	Rochester	0.6
Seattle	0.3		

The Mountain and Pacific cities (table 8) appear to have come well out of their period of excessive diphtheria prevalence manifest in 1920-1924. In seven of the eleven cities, the diphtheria death rate is lower than 1 per hundred thousand, and only two cities had a higher diphtheria mortality in 1931 than in 1930. This group of cities as a whole had the lowest diphtheria mortality in any geographic division in 1931, as they did in 1930.

It is worth noting that in the large urban centers of the United States the highest diphtheria mortality in 1931 was in the cities of the three Southern groups:

East South Central, West South Central and South Atlantic. This is a reversal of what epidemiologists have been used to regard as the "normal" geographic distribution of diphtheria mortality. To what extent this divergence is due to an excessive prevalence of the disease in 1931 throughout our Southern cities, to an unusual freedom from or mildness of diphtheria in the Northern cities, or to a more extensive exploitation of protective measures in the latter group is a problem toward the solution of which the evidence accruing in the next few years will be watched with interest.

TABLE 11.—*Number of Cities with Various Diphtheria Death Rates*

	No. of Cities	40 and Over	20 and Over	10 and Over	5 and Over	Under 5
1890–1894	64	52	60	61	62	2
1895–1899	66	34	53	63	65	1
1900–1904	68	22	46	64	66	2
1905–1909	72	3	43	66	71	1
1910–1914	79	1	36	63	78	1
1915–1919	84	0	25	62	81	3
1920–1924	88	0	14	65	86	2
1925–1929	92	0	1	22	67	25
1927	92	0	2	31	62	30
1928	92	0	1	21	58	34
1929	92	0	2	17	47	45
1930	93	0	2	11	32	61
1931	93	0	0	3	29	64

TABLE 12.—*Total Diphtheria Death Rate for Eighty-Eight Cities, 1923-1931* *

	Population	Diphtheria Deaths	Diphtheria Death Rate per 100,000 Population
1923	31,060,848	4,078†	13.13
1924	31,722,841	3,439	10.84
1925	32,384,834	3,133	9.67
1926	33,046,827	3,106	9.40
1927	33,708,820	3,493	10.36
1928	34,370,813	3,176	9.24
1929	35,032,806	2,738	7.82
1930	35,694,802	1,827	5.12
1931	36,503,412	1,366	3.74‡

* The five following cities are omitted from this summary because data for the full period are not available: Jacksonville, Miami, Oklahoma City, South Bend and Utica.
† Data for Fort Worth lacking.
‡ The rate for the ninety-three cities in 1931 is 3.72 (population, 37,145,012; diphtheria deaths, 1,383). The corresponding rate in 1930 was 5.12.

TABLE 13.—*Total Diphtheria Death Rates per Hundred Thousand Population for Ninety-Three Cities According to Geographic Divisions*

	1931 Population	1931 Diphtheria Deaths	1930 Diphtheria Deaths	Diphtheria Death Rates		
				1931	1930	1925–1929
New England	2,617,705	114	119	4.35	4.57	8.34
Middle Atlantic	12,866,100	356	519	2.78	4.10	9.97
South Atlantic	2,352,107	104	84	4.42	3.65	7.37*
East North Central	9,585,300	406	725	4.23	7.79	11.21†
East South Central	1,223,300	84	60	6.87	5.00	6.34
West North Central	2,688,600	100	99	3.72	3.74	7.82
West South Central	1,905,700	113	118	5.93	6.43	9.24‡
Mountain and Pacific	3,906,200	106	135	2.71	3.59	6.28

* Lacks data for 1925 for Jacksonville and Miami.
† Lacks data for South Bend.
‡ Lacks data for Oklahoma City for 1925 and 1926.

For the first time since these summaries were undertaken, not a single one of the ninety-three cities recorded a rate as high as 20, and only three cities had rates of 10 or over (table 11). The great improvement that has taken place is also shown by the remarkable decrease in the number of diphtheria deaths and in the rate for the total population concerned (table 12). Both these are much lower than for any previous period; indeed, less than one half of what they were in 1929. It cannot yet be said how far this decline in diphtheria mortality is due to natural fluctuation in the severity of the disease and how far to the institution of protective inoculation and other control measures. The available facts, however, are such as to warrant the continuance even more intensively of the control measures now being advocated in this country.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION HAS AUTHORIZED PUBLICATION OF THE FOLLOWING ARTICLE.

H. A. CARTER, Secretary.

THE TREATMENT OF SKIN DISEASES BY PHYSICAL THERAPEUTIC METHODS

GEORGE M. MacKEE, M.D.
NEW YORK

In this article the physical therapeutic methods, other than the various types of radiation, commonly used in dermatologic practice will be discussed.

HIGH-FREQUENCY CURRENTS

Currents of high frequency are employed in dermatology in several ways and for various purposes. Their widest range of usefulness is for the production of heat within the tissue. When tissue is heated to a temperature insufficient for its destruction but sufficient for therapeutic effect, the application is known as medical diathermy. If the amount of heat is sufficient to destroy tissue by coagulation or by dehydration, the application is called surgical diathermy. Medical diathermy is used to some extent in dermatology; surgical diathermy is used a great deal.

A number of terms have been coined to designate the type of current used or to indicate its effect on tissue. This has led to a confusing and at times contradictory nomenclature. In this article the following nomenclature will be used:

1. Medical diathermy: The use of a high-frequency current for medical purposes.
2. Surgical diathermy: The use of a high-frequency current for any surgical purpose.

A. Cutting current (bipolar and monopolar high-frequency current) obtained from the primary winding of the high-frequency transformer.

B. Electrocoagulation: Bipolar and monopolar high-frequency current obtained from the primary winding of the high-frequency transformer.

C. Electrodesiccation: Monopolar high-frequency current from the secondary winding of the high-frequency transformer.

The detailed physics of high-frequency currents and a description of apparatus will not be given here. They have been already discussed in these columns, and descriptive catalogues are supplied by manufacturers. All that is necessary here is to explain some of the terms used in this article. Briefly, high-frequency currents are usually obtained in the following manner: The street current is stepped up in voltage by a small conventional transformer. Oscillations or high frequencies are obtained by means of condensers and a spark-gap or oscillating tube. The oscillating current is again stepped up in voltage by means of another coil or transformer which may be called the high-frequency transformer. The primary of this transformer consists of a few turns of heavy

wire. This was formerly called the solenoid. The secondary coil consists of many turns of fine wire and was originally called the resonator. The secondary may be wound around the primary or the two coils may be connected end to end. Originally, current from the primary was known as the d'Arsonval or solenoid current, while that from the secondary was called the Oudin or resonator current. These terms are now obsolete. Each turn of wire provides higher voltage and lower milliamperage. Taps taken from different portions of these coils provide currents of different voltage and milliamperage and are used for different purposes—coagulation, cutting and desiccation.

General Technic of Application.—The effect on tissue will depend on the voltage milliamperage and the manner of application. When current from the primary winding of the high-frequency transformer is applied so that some part of the body is between two large electrodes, the tissue between these electrodes will become heated—medical diathermy. The entire surface of each electrode must be in contact with the skin. It is customary to begin with about 200 or 300 milliamperes, which may be increased gradually to 3,000 or more, depending on the patient's toleration and the size of the electrodes. The larger the electrode, the greater the amount of current tolerated as a rule. Applications for dermatologic purposes last usually from ten minutes to a half hour. Long treatments with mild current seem preferable to short treatments with heavy current.

If the same current is applied by means of a pointed needle electrode inserted into the tissue with a large indifferent electrode on some other part of the body, there is coagulation or destruction of tissue in the vicinity of the needle—electrocoagulation. The destruction may extend from one to several millimeters in all directions. The small blood vessels and lymphatic vessels are occluded. The length of application for each insertion is usually from one to several seconds.

One objection to electrocoagulation is the difficulty of accurately controlling the amount and extent of tissue destruction. This may be obviated to a considerable degree by using a bipolar electrode—two needles about 2 mm. apart. With such an electrode, both needles of which are active, the current passes from needle to needle and coagulation is confined to the tissue between the needles. Electrocoagulation can be performed, also, with monopolar high-frequency current.

The same coil also supplies the cutting current. The indifferent electrode may be a wet towel held in contact with the forearm with a metal clamp. The other pole is usually a needle. The current from the point of the needle cuts as quickly as does a sharp scalpel. There is slight coagulation of tissue and there is occlusion of the small lymphatic and blood channels. With a finely adjusted current there is very little gross coagulation or charring, but there is always some. Instead of a needle electrode, one may use fine wire loops of various sizes. Loops are at times advantageous for snaring off small benign tumors and for other purposes that will be mentioned later. The needle electrode is the one employed as a routine.

Recently it has been found possible to coagulate and cut with monopolar current from the primary winding of the high-frequency transformer. I have employed the monopolar current for these purposes and have found it satisfactory. It is possible that all future apparatus will supply this type of current.

The current for electrodesiccation (monopolar) is obtained from the second winding or coil of the high-frequency transformer. The bipolar and monopolar currents from the primary winding cause death of tissue by coagulation. These currents are more suitable for deep, drastic destruction of tissue. Current from the secondary winding is more easily controlled, more flexible. The effect is that of desiccation or mummification. By proper adjustment of controls one can desiccate an area of skin or mucous membrane the size of a pin-head.

Treatment may consist in instantaneous contact between needle and skin in the case of a tiny, superficial skin lesion; or the current may be allowed to act for several or many seconds, mummifying the tissue to a depth of one or several millimeters. In the case of larger and deeper skin lesions, the needle may be inserted into the growth. By multiple insertions and heavy current (primary winding) it is possible to destroy completely a large tumor of the skin or mucous membrane.

With a properly adjusted current, wounds may be made completely dry, with cessation of oozing and hemorrhage from small vessels. With a heavy current (primary winding) the needle is held against bleeding points from one to several seconds, after which the entire wound is bombarded with coarse sparks (secondary winding), the surface becoming dry and charred.

There are no detailed standards for high-frequency apparatus. The currents from different machines will vary somewhat in characteristics. It is necessary, therefore, for the physician to become acquainted with the peculiarities of his apparatus. When using current for surgical diathermy it is customary to employ either a foot-switch or a spring contact on the needle holder. The switchboard on the apparatus contains plainly marked controls and switches.

Most high-frequency machines are equipped with a hot-wire milliamperemeter which may be used with bipolar current from the primary winding (medical diathermy; bipolar electrocoagulation; cutting current) but not with the monopolar currents. Too much reliance should not be placed on the milliamperemeter. Milliamperage is not an accurate guide to the production of heat or to the amount of destruction of tissue. Also, heat production and coagulation depend on details of technic such as size and shape of electrode, resistance offered by various tissues, the time factor, and characteristics of the particular apparatus.

General Therapeutic Considerations (high-frequency currents).—Diathermy is far from being a safe method in unskilled hands. Carelessness and ignorance when applied to medical diathermy may result in undesirable injury to the skin and even to the underlying structures. Surgical diathermy may cause injuries which are objectionable, painful, disfiguring and at times dangerous.

The intelligent and proper use of surgical diathermy requires a knowledge of the general principles of surgery. Major surgical diathermy is best applied by those who have had extensive experience with scalpel surgery. Minor surgical diathermy is within the reach of most physicians.

When employing electrocoagulation, one must take care not to destroy important, normal, adjacent tissue unnecessarily. Also, hemorrhage must be guarded against. During the application of the current there may be no hemorrhage because small vessels are occluded, but a large, adjacent vessel may be damaged just enough to cause a severe postoperative hemorrhage.

The cutting current seals small vessels but not the large ones. Hemorrhage from the larger vessels can be controlled often by applying to the vessels for a second or two a strong monopolar coagulating current. However, it is preferable to ligate large vessels either before or during the operation.

The coagulating and desiccating currents seal the lymphatic vessels completely. The cutting current does the same but not so thoroughly. Advocates of surgical diathermy believe that this instantaneous occlusion of lymphatic vessels prevents metastasis of malignant tumors. When dealing with an accessible malignant tumor, it is customary to produce a ring of coagulation well beyond the periphery of the lesion. The tumor is then thoroughly coagulated, and the entire mass is removed with curet, scissors or cutting current. Finally, the wound is electrodesiccated and dressed. It is usually advisable to remove tissue that has been thoroughly coagulated, in order to prevent subsequent infection.

The advocates of the cutting current aver that the incision may be sutured and that primary union will follow. This is true, but primary union often fails. It is less likely to fail if the incision is freshened with scissors, scalpel or curet before it is sutured.

Nearly all surgical diathermy operations require either general or local anesthesia. It is surprising how often physicians will attempt to destroy a small growth (basal cell epithelioma for instance) with high-frequency currents without anesthesia of any kind. Without local anesthesia it is usually impossible to do the work thoroughly or properly. In dermatologic practice there are some lesions that require only an instantaneous application of the electrodesiccation current. In such instances an anesthetic is unnecessary. But as a rule some kind of anesthesia is essential. Surgical diathermy requires the same attention to asepsis as does scalpel surgery. Hypertrophic scars are rather common subsequent to the various kinds of surgical diathermy.

ELECTROLYSIS

A current suitable for electrolysis may be obtained from wet cells or dry cells; or the commercial direct current, if available, may be used. The voltage employed for electrolysis is low, about 20 volts; the milliamperage is from one-fourth milliampere to 2 or 3 milliamperes. Devices for use with commercial direct and alternating currents are on the market. A cheap, convenient and satisfactory apparatus for dermatologic practice consists of a 22 volt dry battery such as is used with radio receiving sets. This is placed in a small cabinet on which is mounted a milliamperemeter, a rheostat and binding posts. These posts should be plainly marked positive and negative, and the operator must be certain that the polarity is correct.

The active negative electrode is a needle. For coarse work an ordinary small sewing needle will suffice. For delicate work, particularly for hypertrichosis, exceedingly thin needles specially made for this purpose are obtainable. When steel needles are used, it is especially important to be certain of polarity, because with a positive current and a steel needle permanent black marks are likely to occur. For this reason many physicians prefer platinum needles. Some physicians prefer to use multiple needles—a handle containing several needles 1 or 2 mm. apart—especially for the treatment of pea-sized or larger growths. The majority, however, favor a single needle because of better control of the result. The inactive positive electrode is of the sponge type. It should be wet with sodium chloride solution and may be held in the patient's hand.

The term electrolysis is an old one in dermatology. In the past decade the terms medical and surgical ionization have come into use. The latter term is incorrectly used, for surgical ionization is electrolysis—the destruction of tissue with the negative pole of a galvanic (direct) current. The destruction is due to electrolysis, which causes the collection of caustic or destructive chemicals around the needle. Electrolysis is used extensively in dermatologic practice.

For medical purposes the same current is applied with large electrodes, the indifferent electrode being held in the hand or strapped to some convenient part, while the active electrode is held against the part to be treated or is kept in motion over the part. It is averred that with the negative pole there is vasodilatation and a softening effect on new formed tissue (scars), while with the positive pole there is vasoconstriction and hardening. Medically, the galvanic current is used often in connection with some ion, especially the ions of chlorine, zinc, copper and carbon. It is said that these and other elements can be forced into the skin by the galvanic current (cataphoresis). Cataphoresis has not been very successful in dermatology.

CAUTERIZATION

Cauterization may be accomplished with chemicals or with heat. We are concerned here only with heat. The actual cautery (thermocautery) consists of a red hot or white hot object, usually a piece of wire or a pointed metallic instrument. The wire or metallic point may be heated in a flame; it may be kept constantly heated with a device such as the Pacquelin cautery; or it may be heated with electricity (electric cautery; galvanocautery).

The cautery was employed formerly in dermatology more than at present. It is used occasionally for the destruction of small benign growths such as warts, small basal cell epitheliomas, small areas of leukoplakia, visible cutaneous capillaries (telangiectasia) and some of the small precancerous dermatoses; also for the treatment of hypertrophic rosacea, rhinophyma, and a few other conditions. Most dermatologists prefer the high-frequency current or some other method for these purposes. Some high-frequency machines supply current for the electric cautery, making it unnecessary to purchase additional apparatus for this purpose.

Focusing the sun's rays with a lens for the purpose of destroying certain skin lesions has been attempted, but the method has been used by very few physicians.

THERAPEUTIC REFRIGERATION

The term therapeutic refrigeration refers to the use of liquid air or solid carbon dioxide for therapeutic purposes. The skin can be superficially frozen with ethyl chloride, as every physician knows, but as a rule the therapeutic use of ethyl chloride is not included in the category of therapeutic refrigeration. Ethyl chloride has been used successfully in the treatment of larva migrans. It has been employed with indifferent success in dermatophytosis (ringworm) and scabies. Liquid air is a useful remedy but it is so difficult to obtain that it is rarely used. Solid carbon dioxide (CO_2 snow) has been a popular remedy among American dermatologists. Although it has been displaced to some extent by other remedies, it is still a useful therapeutic agent.

All that is necessary for the preparation of solid carbon dioxide is a tank or drum of carbon dioxide, which

may be obtained from a dealer in any large city. Most dermatologists keep the drum mounted on the wall at an angle of 30 or 40 degrees. Snow may be collected in the following manner: A piece of ordinary blotting paper is rolled into a tube about 4 or 5 inches long. The circumference of this tube should be such that one end will fit snugly over the tank outlet. The blotting paper tube may be held in place with electricians' tape or with surgeon's adhesive tape (zinc oxide plaster). The free end of the tube is plugged with absorbent cotton. The tube is covered with a piece of chamois. The whole is now tightly bandaged with a wide bandage of flannel. The valve is opened gradually until a crackling sound is heard, the tube swells, flakes of snow are seen and gas escapes at various points. The valve is left open for a minute while the crackling continues. This will produce pressure and the snow will be packed firmly. The valve is then closed and the tube removed. If properly done there will be a solid pencil of snow in the blotting paper tube. A perfect pencil of snow is so hard that it is difficult to cut with a sharp knife. The blotting paper is removed from one end, the remainder serving for insulation. The free end is shaped with a knife to a size and shape suitable for the particular application.

Various devices have been on the market for the convenient collection and preparation of solid carbon dioxide, most of which are no longer used. In larger urban centers it is possible to obtain solid carbon dioxide from merchants who sell ice cream in the so-called dry packs (dry ice). In recent years a French device known as the cryocautery has become popular. This consists of a series of copper tubes, each tube having a different size and shape at the active end. These active ends are round, oval or square and range in size from a pinpoint to a fifty-cent piece (30 mm.). The tubes fit into a specially constructed handle. Snow is collected in the tube, about 30 drops of acetone is added, and the instrument is ready for use.

Solid carbon dioxide has a temperature below zero Fahrenheit. When a pencil of snow is held in contact with the normal skin for one or two seconds, with light pressure, there is a stinging sensation and the application is followed by erythema. Four or five seconds will evoke a blister. Ten or fifteen seconds causes superficial necrosis. Longer applications, from fifteen to forty-five seconds, will cause moderately deep and deep ulceration, respectively. The degree of pressure makes a great difference in the result. A few seconds with heavy pressure is more effective than double the time with very light pressure. The result depends partly on the character of tissue treated. For instance, a verrucous lesion will tolerate considerably more treatment than will normal skin, as also will hyperkeratotic and acanthotic lesions.

Refrigeration, when applied to many conditions, results in a scar; but the scar is always soft, pliable and of excellent cosmetic or esthetic quality. Hypertrophic scars and keloids subsequent to refrigeration are rare. When applied to warts there is very little pain. When applied to other conditions, such as nevi, the pain is quite severe during the treatment and there is considerable aching and throbbing for several hours. It is customary not to use any form of anesthesia.

Formerly, solid carbon dioxide was used as a treatment for a great variety of skin conditions. In this country it is now used mostly for certain nevi, for warts, and occasionally for telangiectasia and lupus erythematosus.

BALNEOTHERAPY

Medicated baths and wet dressings, especially the latter, are used extensively by all dermatologists. Wet dressings are employed mostly for acute inflammations of the skin, vesicular and pustular eruptions, and exudative surfaces. Distilled water is the vehicle that may contain any one of a large number of chemicals in high dilution—potassium permanganate, boric acid, aluminum acetate, metaphen, lead acetate, silver nitrate.

Compresses and poultices are used to supply moisture, heat and medication. Hot poultices, so popular formerly, have been displaced to a large extent by medical diathermy and radiant heat.

The diseases and conditions for which wet dressings are used mostly are boils, carbuncles, wounds, erysipelas, the various types of acute eczema, impetigo and folliculitis.

Medicated baths, while not particularly efficacious, are used for subacute and chronic eczema, ichthyosis, pruritus, urticaria, pemphigus and other diseases. Bran, oatmeal and starch are employed for soothing baths.

The so-called antipruritic baths are made by adding 8 or 10 ounces of sodium bicarbonate or epsom salt to the water. Various pine products are on the market, also tar and sulphur preparations, for the bath. Sea water or sea salt is often used.

The continuous bath is used mostly for severe cases of pemphigus, when the greater part of the body is covered with bullae, crusts, erosions and vegetations. It is customary to add a grain or two of potassium permanganate to the bath.

Other forms of hydrotherapy are employed very little in dermatology. Many dermatoses disappear during a vacation at some spa, but dermatologists are generally agreed that improvement, when it occurs, is due to changed environment, rest or psychology.

MASSAGE, POSTURE, STRAPPING

In dermatology, massage is employed as an adjuvant in a few diseases. Massage of the scalp is used for local circulatory benefit in the various types of alopecia. Massage is a recognized treatment for keloids, keloidal bands, hypertrophic scars and adherent, hard, contracted cicatrices. It is employed, as a rule, as an adjuvant to other treatment, such as x-rays, radium or galvanism. The best results seem to be obtained by a rapid kneading motion.

Massage is one of the best treatments for scleroderma. The motions consist of gentle kneading and stroking. Massage is used a great deal in cosmetology —for wrinkles, sagging or paleness. Its use in dermatology is limited. It is customary, when employing massage for these conditions, to apply some form of grease. Cocoa butter (oil of theobroma) appears to be the most popular substance for this purpose. Cold cream containing a little heavy liquid petrolatum, petrolatum or hydrous wool fat is used often in place of the cocoa butter.

Occasionally, massage is indicated for chronic eczema of the extremities, or for any condition associated with congestion and stasis. Often it is combined with special posture as, for instance, elevation of the legs or arms. These measures are used for such disorders as Raynaud's disease and chronic ulcers.

Cutaneous stasis may at times be lessened, and indolent ulcers, especially those having an infiltrated or indurated margin, may be benefited by strapping with adhesive plaster or the wearing of some support for the local circulation, such as elastic stockings or bandages that possess elasticity.

It is advisable, when treating chronic cutaneous conditions of the legs associated with varicose veins, to instruct the patient never to stand still for more than a few seconds. He may take a prescribed amount of walking because intermittent muscular contraction is thought to favor circulation, whereas the continuous tension produced by standing may interfere with circulation.

DISEASES AMENABLE TO PHYSICAL AGENTS

Verruca (wart).—There is a large variety of verrucae, most of which are only of cosmetic importance. The physician should be certain of the diagnosis; otherwise a benign lesion might be mistaken for a dangerous one. Because of their benign nature and cosmetic importance, it is often essential to select a method that will destroy the wart without leaving a scar. Not infrequently, one encounters a scar that is more disfiguring than the original, harmless lesion.

Verruca Vulgaris.—Surgical Diathermy: Very small lesions, and even larger ones, will at times disappear subsequent to mild electrodesiccation of the surface of the wart. If the treatment is successful, the wart disappears in two or three weeks without leaving a scar. It is more efficacious to make one or several insertions of the needle, permitting the current to act for a fraction of a second.

The common wart is occasionally exceedingly stubborn. Treatment as already outlined will in such instances fail to cure, or the lesion may disappear and recur. Such lesions can be cured usually by thorough dehydration or by coagulation. If the wart after such treatment is left in situ, it may remain dry and drop off in two or three weeks; but it is more likely to slough under the crust and cause considerable inflammation. For this reason it is preferable to enucleate the dried lesion with scissors or curet. The after-treatment is that of an ordinary wound, and the ultimate result is usually a scar, which occasionally is hypertrophic.

Refrigeration and Other Physical Agents: Solid carbon dioxide offers a useful and often satisfactory treatment for the common wart. A pencil of hard snow, the end of which has been trimmed to proper shape and size, is pressed firmly against the surface of the lesion until the surface turns white. When successful, the wart disappears in about three weeks. Usually there is no scar.

Common warts can be destroyed with electrolysis and with the actual cautery, but these agents are seldom used for this purpose.

Verruca Plana.—The juvenile flat wart (verruca plana juvenilis) does not yield particularly well to electrodesiccation, and destruction by this method is very likely to leave objectionable scars. There are better methods of treatment.

Small discrete flat warts in adults can be destroyed with exceedingly superficial electrodesiccation, skilfully applied electrolysis, or a very light application of solid carbon dioxide without leaving a scar.

Verruca Plantaris.—Electrodesiccation is an excellent method of destroying these troublesome lesions. The lesion is first thoroughly desiccated by sparks applied from a needle to its entire surface for a minute or two. The wart may then be shelled out and the base and edge of the wound electrodesiccated. Thereafter, the patient has the discomfort of an ordinary wound which usually is much less than that of the wart. The after-care is that of any ordinary wound. The wound will heal in from one week to three or four weeks, depending on its size and depth.

Verruca Acuminata (condyloma acuminatum).—Very small, discrete warts may be destroyed with superficial electrodesiccation without local anesthesia. Otherwise it is necessary to desensitize the involved area, electrodesiccate thoroughly, remove the desiccated lesions with a curet, and then lightly desiccate the wound. The results are excellent.

Venereal warts may be destroyed, also, especially when small and isolated, with solid carbon dioxide, electrolysis and the actual cautery, but these agents are not so efficacious as is electrodesiccation.

Miscellaneous Warts.—Scalp warts may be of the common type, flat type, and so on. Often they are of the digitate variety. Any scalp wart can be quickly destroyed with electrodesiccation by means of the technic given for verruca vulgaris. When properly applied, there is no danger of permanent alopecia.

Warts of several varieties occur on the mucous membranes of the lips, tongue, cheeks, penis, vulva and the mucocutaneous juncture of the eyelids. Electrodesiccation is a suitable treatment for warts in these locations. Lesions on the eyelid should be very superficially desiccated in an attempt to prevent scarring and loss of eyelashes.

The bearded region of the adult male and the neck of women are favorite locations for digitate and especially filiform warts. Digitate warts may be lightly desiccated and removed with a curet, and the base lightly desiccated. If carefully done there will be either an almost imperceptible scar or none at all.

Filiform warts may be single but often they are numerous—at times a hundred or more. Such lesions can be destroyed by an instantaneous application of a very mild electrodesiccation current to the base of the wart. They drop off in about a week and when carefully done there is no permanent disfigurement.

Any of these miscellaneous warts can be destroyed with solid carbon dioxide, electrolysis or the actual cautery. Skilfully applied, electrolysis will remove filiform warts without the slightest scar. Judicious applications of solid carbon dioxide are efficacious for filiform warts of the skin and mucous membranes and as a rule there is no scarring. The actual cautery is seldom employed for this purpose.

Keratoses.—There are a number of types of keratoses and it is important to differentiate between them because the potentialities differ with the type. They are included among the so-called precancerous dermatoses, but some of them are almost free of danger while others are extremely dangerous. It is also important not to confuse a keratosis with an early stage of epithelioma, or sarcoma, or with tuberculosis, psoriasis, and other diseases.

Keratosis Seborrheica: This is the most common type of keratosis. While classified among the so-called precancerous dermatoses, the seborrheic keratosis is not very dangerous. It may give rise to basal cell epithelioma. For the sake of appearance and as a prevention against basal cell epithelioma, it is often desirable to destroy these lesions; but it is not always necessary nor even advisable to do so.

The physician should use judgment in selecting the treatment best suited for the individual case. Electrodesiccation is an excellent therapeutic method for this purpose, but there are better methods for selected cases. It is, for example, poor judgment to replace a small,

superficial, almost benign seborrheic keratosis on the face of a society woman with an objectionable scar.

When a slight scar is of no importance, the surface of the lesion and a little normal skin around the periphery of the lesion may be rather thoroughly desiccated. If there is definite infiltration under the horny layer, the area may be curetted after thorough superficial desiccation and the resulting wound again electrodesiccated. Such treatment usually leaves a mild, permanent scar.

Electrolysis, solid carbon dioxide and the actual cautery are used by some dermatologists for the destruction of seborrheic keratoses. If expertly applied these agents give satisfactory results, but they are not popular for this purpose.

Keratosis Senilis: The senile keratosis should be taken seriously. It is one of the forerunners of epidermoid cancer. These lesions are especially dangerous when occurring on the mucous surface of the lips. In this location they should be radically destroyed as soon as diagnosis is established.

Of the various physical agents (excepting radium and x-rays) electrodesiccation is the best one for this purpose. The lesion and a little normal skin around the lesion is thoroughly desiccated by surface application of the monopolar current. The dehydrated tissue is then removed with curet or scissors and the wound desiccated with the same current.

If there is any infiltration; that is, if the lesion is thick or elevated, an early stage of prickle cell epithelioma should be suspected. If is now the physician's responsibility to make the diagnosis and decide on the best method of treatment. If properly done, surgical diathermy is one of the best treatments, either alone or combined with x-rays; but radium and especially scalpel surgery are more suitable for selected cases. Other physical agents should not be used.

So far as concerns surgical diathermy, one may coagulate, desiccate or excise with the cutting current, depending on conditions. It is customary first to establish a circle of coagulation a few millimeters beyond the lesion and extending down to the muscle. Next, the lesion is thoroughly desiccated or coagulated to the same depth. The destroyed tissue is then removed with cutting current, scalpel, curet or scissors and the wound dehydrated with electrodesiccation. Some physicians prefer to excise the lesion with the cutting current and use the material for microscopic examination.

Nevoid Keratosis: Like the seborrheic keratosis, these lesions are not very dangerous. A certain percentage give rise to epithelioma of the basal cell type. As these lesions vary markedly in size and thickness and as it is at times advisable to avoid a scar, it is preferable to select a method of treatment and to apply such treatment in a manner that will offer the best chance of obtaining the desired result. Electrolysis, refrigeration and the actual cautery are seldom used for the destruction of the nevoid keratosis, although for some cases they are satisfactory agents. Electrodesiccation is an excellent remedy for selected cases. The technic is the same as that outlined for the seborrheic keratosis.

Miscellaneous Keratoses: Arsenical keratoses resemble senile keratoses. Not infrequently they give rise to cancer, either basal cell or prickle cell, usually the latter. Numerous, closely crowded, deep lesions on the palms and the soles are usually treated expectantly and the patient kept under observation. Discrete lesions are treated in the same way as senile keratoses.

X-ray and radium keratoses occur on the so-called x-ray or radium skin. A fairly large percentage of these lesions give rise to epithelioma, usually of the epidermoid type. The tissue in which this type of keratosis develops, because of degeneration and sclerosis, is often unfavorable soil for any therapeutic agent. Small, discrete, superficial keratoses of this type may be destroyed with various physical agents, but the most popular method is electrodesiccation.

The keratoses of xeroderma pigmentosum resemble the senile variety and sooner or later give rise to epithelioma, which, however, is often of the basal cell type. The treatment is the same as that outlined for seborrheic keratosis.

Leukoplakia (leukokeratosis).—Leukoplakia is one of the forerunners of epidermoid cancer. For this reason every case should be kept under observation indefinitely. Small lesions may be destroyed with the actual cautery or with electrodesiccation. When the cautery or electrodesiccation is used, care should be taken to destroy the entire thickness of the mucous membrane, and the destruction should extend beyond the periphery of the patch.

Many cases of leukoplakia are widespread. In such instances it is preferable to inspect the mouth every three months. If, at any time, one portion of the leukoplakia shows persistent activity—erosion, fissure, ulceration, warty excrescences—that particular portion should be destroyed.

Kraurosis Vulvae: Areas of leukoplakia, warty growths or fissures occurring in this disorder should be handled as described under leukoplakia.

Tuberculosis of the Skin.—Lupus Vulgaris: Discrete apple-jelly nodules can be destroyed with the actual cautery and with electrolysis, but perhaps the best destructive physical agent for this purpose is electrodesiccation. Superficial nodules can be dehydrated by applying a strong current to the surface for half a minute or longer, or the needle may be inserted into the nodule. Large patches of lupus vulgaris can at times be cured in this manner. Occasionally it is advisable to desiccate or coagulate the entire patch.

Tuberculosis Verrucosa Cutis (verruca necrogenica; warty tuberculosis of the skin): Small lesions of this form of true tuberculosis of the skin can be permanently destroyed with electrodesiccation. Large patches are difficult to cure. It is necessary, as a rule, to desiccate or coagulate very thoroughly, remove the destroyed tissue and then electrodesiccate again.

Sarcoid: There are two recognized types of sarcoid —the deep (Darier-Roussy) and the superficial (Boeck). Small lesions of the latter type can be destroyed satisfactorily with electrodesiccation. Other physical agents, with the exception of x-rays and radium, are not very efficacious.

Lupus Erythematosus: Before the advent of intravenous gold therapy, solid carbon dioxide was perhaps the best treatment for the fixed or discoid type of lupus erythematosus. Even now, it is used occasionally as an adjuvant for very thick discoid patches. It is never used for the disseminate type.

Miscellaneous Types of Cutaneous Tuberculosis: Granuloma annulare is treated occasionally with destructive physical agents, but there are much better methods of treatment. The individual nodules of lupus miliaris disseminatus faciei and allied conditions can be destroyed with electrodesiccation, as in lupus vulgaris, but such treatment is seldom employed because the

lesions often disappear spontaneously and because they are very amenable to x-ray treatment.

There are a number of clinical entities falling in the tuberculosis group that will not be mentioned here because they are seldom if ever treated with the agents being discussed in this article. Some types of orificial tuberculosis—circumscribed lesions of the tongue, mucous membrane of the cheek, near the meatus, or in the anal region—can be successfully managed with the actual cautery or with electrodesiccation.

Nevi.—Birthmarks are divided into types. Physical therapy is indicated for a number of types, but as one agent produces a better result in one variety than in another, it is advisable to mention each type of nevus separately.

Vascular Nevi: These are common and may be conveniently divided into four varieties: nevus araneus (spider nevus); nevus flammeus (port-wine mark) and angioma, the latter being subdivided into the strawberry mark and the cavernous angioma. Scientifically they all are classed under angioma or hemangioma.

Nevus Araneus: These lesions present a dark red center which varies in size from a tiny dot to the head of a pin. From this center, somewhat tortuous, dilated capillaries extend outward for a distance of perhaps half an inch. The best treatment for the spider nevus is electrolysis. All that is necessary is to puncture the central dark spot with the point of the needle. There should be no scar.

Nevus Flammeus: Unfortunately, there is no satisfactory treatment for port-wine marks. It is almost hopeless to attempt eradication of an extensive lesion; one, for instance, that involves the arm, forearm and hand. Repeated strong applications of solid carbon dioxide will remove small lesions, but, of course, such treatment leaves a scar. Electrodesiccation is less satisfactory than refrigeration, and cicatrization is more pronounced.

Strawberry Mark: These lesions can be destroyed in various ways—refrigeration, electrodesiccation and excision—but by far the best results are obtained with radium. Any treatment other than with radium leaves a scar.

Cavernous Angioma: Unlike the other vascular nevi, these lesions are deep. Here, too, the therapeutic results are better with radium than with any other agent, provided the treatment is administered during infancy or very early childhood. Other physical agents are useful for older patients or for lesions that do not yield to radium. All successful physical therapeutic methods, other than radium, cause ulceration and scars. Small, comparatively superficial lesions can be destroyed with solid carbon dioxide. The resulting scar is of excellent quality. Electrodesiccation and electrocoagulation have been used successfully for small lesions. Multiple insertions of the needle at intervals of a few millimeters are usually necessary.

Senile Angioma: This is a vernacular term for angioma developing during adult life and old age. These lesions, when small, may be destroyed easily with superficial electrodesiccation. Angiokeratomas may be destroyed in the same manner.

Lymphangioma: There is no satisfactory treatment for the deep type—injections, surgery and surgical diathermy have been used with some success. The superficial type can be destroyed, if so desired, with solid carbon dioxide or electrodesiccation.

Pigmented Nevi: Lesions falling under the head of nevus pigmentosus range from those having little if any importance to those that are very dangerous. In order to select the best treatment for a given lesion, to decide for or against treatment, the physician must have considerable knowledge relative to the therapeutic methods and the various types of nevi. It is, in fact, so important to be certain of the potentialities of a given pigmented mole that the family physician is foolish to accept the responsibility of treatment without a consultation. The classification used here is not conventional; it is for convenience.

Common Mole: The common mole, a lesion that is small, smooth, shiny, more or less elevated, of normal skin color or of various shades of brown, and which usually contains a few coarse hairs, is not considered a dangerous lesion unless subjected to frequent traumatism over a period of many years. The selection of proper treatment requires discriminating judgment. When only of cosmetic importance, moles may be ignored or they can be removed with electrolysis with almost no scarring. When potentially dangerous because of repeated traumatism, they may be excised or destroyed with electrocoagulation. When such moles are very dark, especially blue-black, they should be let alone or radically destroyed.

Mouse-Skin Moles: These moles are dark brown, more or less elevated, thick and sharply outlined and contain, as a rule, a large quantity of rather fine hair. The appearance is somewhat that of mouse skin. They are not considered very dangerous. Excellent results have been obtained with solid carbon dioxide, although several strong applications may be necessary. Electrodesiccation is also a good remedy for small lesions.

Flat Pigmented Nevi: These nevi consist clinically of a sharply outlined area of pigment which may be of any size or shape. The color is important. When of a light brown they are not considered to be dangerous and may be destroyed with solid carbon dioxide. Black, slate gray, brownish-black and especially bluish-black moles of this type, without hair, are considered to be potentially dangerous. Occasionally, sarcoma develops in such lesions, especially when they have been traumatized. While the majority of such lesions never change to cancer, they are a menace and therefore it seems preferable to destroy them—but if they are treated at all it is essential that every cell be destroyed. This necessitates surgical excision or some form of surgical diathermy. The destruction should extend well beyond the visible margin of the lesion and down to the underlying muscle.

Miscellaneous Nevi: Nevus unius lateralis, or linear birthmark, may be of almost any of the types mentioned in this article. Treatment depends on the type. The verrucous or warty nevus is difficult to treat successfully. Solid carbon dioxide and electrodesiccation are successful in some cases.

The cerebriform nevus must be considered potentially dangerous because it occasionally gives rise to sarcoma. Any treatment that fails to destroy every cell is contraindicated—solid carbon dioxide; electrolysis; light electrodesiccation. Surgery or radical surgical diathermy are the best methods if the lesion is to be treated at all.

Papillary nevi can be destroyed with solid carbon dioxide or with electrodesiccation.

Hairy nevi (nevus pilosus) may occur alone or in combination with pigmented moles (nevus pigmentosus et pilosus). When the hair is dark and coarse, it may be removed with electrolysis. There is no satisfactory method for the permanent removal of lanugo hair.

Miscellaneous Benign Growths and Hypertrophies.—Keloid, Hypertrophic Scar and Cicatrix: A keloid denotes idiosyncrasy. The removal of a keloid by any method that causes traumatism (surgery, any surgical diathermy method, solid carbon dioxide, electrolysis) is very likely to be followed by another keloid that is larger than the original one. Combined with the proper use of x-rays or radium, the surgical methods are invaluable for selected cases. Thick keloids may be removed to the level of the normal skin with the cutting current and the resulting wound treated with x-rays.

A hypertrophic scar does not necessarily indicate idiosyncrasy. It may be due to tension. With the exception of x-rays and radium, physical agents are not of much value. Mild cases may possibly be improved by frequent application of the galvanic current over a period of several weeks or months.

Massage is of some value for the treatment of hypertrophic scar tissue. A member of the family can be shown how to carry out the massage. Treatment should be given about three times weekly for several months.

Dermatitis Papillaris Capillitii (acne keloid): In this disorder, when the keloidal element is too massive for x-rays alone, the growth may be removed to the level of the skin with the cutting current (a loop electrode usually being used) and the wound treated with x-rays.

Chondrodermatitis Nodularis Chronica Helicis: Lesions of this disorder can be removed with the cutting current or destroyed with electrodesiccation.

Clavus: Corns, either hard or soft, when failing to respond to conventional dermatologic therapy, can be excised with the cutting current or they can be destroyed with electrodesiccation.

Fibroma: Small, pedunculated fibromas, so common on the neck of middle-aged and elderly women, can be destroyed with electrodesiccation without the slightest scar if carefully done.

Granuloma Pyogenicum: Electrodesiccation offers a suitable method for the destruction of these lesions. Granuloma pyogenicum may resemble a rapidly growing sarcoma. Naturally, the differentiation is important.

Xanthoma: Small lesions of xanthoma tuberosum multiplex may be destroyed with electrodesiccation or with solid carbon dioxide, preferably the former. It is advisable not to treat the individual lesions of xanthoma diabeticorum at least until conventional remedies have been tried. Xanthoma palpebrarum (xanthelasma) responds better to trichloracetic acid than to any of the physical therapeutic remedies.

Adenoma Sebaceum: The papules of this disorder can be destroyed with very mild electrodesiccation, with mild applications of solid carbon dioxide or with electrolysis. Scars should be avoided.

Sebaceous Adenoma: Adenomas of the sebaceous glands may be single or multiple. They may be destroyed either with electrolysis or with electrodesiccation.

Multiple Benign Cystic Epithelioma (tricho-epithelioma; epithelioma adenoides cysticum; syringocystoma): These small usually numerous papules or nodules can be removed with cautiously applied electrolysis or electrodesiccation, but there is likely to be some scarring.

Cornu Cutaneum: Cutaneous horns are included among the precancerous dermatoses. They should be destroyed by thorough electrodesiccation under local anesthesia.

Scleroderma: Massage with cocoa butter is a useful treatment for this disease. A few cases have improved during a course of treatment consisting of applying medical diathermy to the spine and roots of the spinal nerves.

Cysts.—Mucous retention cysts of the lower lip can be destroyed with monopolar or bipolar surgical diathermy. If not completely destroyed or removed, they will recur. Sebaceous cysts, when small, can be destroyed with surgical diathermy in the following manner (Wyeth): A small opening is made into the cyst with the cutting current. The electrodesiccation needle is inserted through this opening and the entire cyst wall is destroyed with the monopolar current. Very small lesions may be destroyed with electrolysis.

Hydrocystomas are likely to disappear as a result of simple puncture. If not, they can be destroyed with electrodesiccation.

Furunculus; Carbunculus.—Boils, when detected very early, can be aborted at times by inserting the needle into the central follicle and applying a mild monopolar high-frequency current for a fraction of a second. Medical diathermy is useful for both boils and carbuncles.

Lichen Planus.—Recently, Juan Jose Mestre of Havana reported excellent results in lichen planus by applying medical diathermy to the cervical and upper dorsal spinal regions. The method has not yet been evaluated.

Rosacea and Rhinophyma.—Often in rosacea there are a few or many dilated visible cutaneous vessels. Destruction of such vessels lessens congestion, improves the appearance, and may make the rosacea more amenable to treatment. Small vessels can be destroyed with electrolysis, the larger ones with electrodesiccation.

Hypertrophic rosacea can be greatly improved with electrolysis or electrodesiccation, especially the latter.

The lobules of rhinophyma can be removed with the cutting current and the resulting wound heavily desiccated. Several excellent results have been obtained in this manner. Loop electrodes are convenient for the purpose.

Telangiectasia.—Dilated, visible cutaneous capillaries occur in association with a number of the dermatoses —rosacea, sequel to x-ray and radium treatment, keloids, hypertrophic scars, lupus erythematosus, and so on. They occur, also, in association with a florid complexion.

When the vessels are small and not too numerous they may be occluded with electrolysis and if this is carefully done there will be little or no scarring. Electrodesiccation is more rapid, but objectionable scarring is likely to result.

Hypertrichosis (hirsuties).—Current from the secondary winding of the high-frequency transformer has been recommended for the permanent removal of superfluous hair. Thus far, however, the results have not been satisfactory. Practically, the only way in which superfluous hair can be removed permanently and safely is with electrolysis. The method requires patience, skill and care. Space does not permit a detailed discussion of technic, especially as it is given in many textbooks on dermatology.[1]

Malignant Neoplasms.—In the treatment of cutaneous cancer, in order to obtain the best results, the physician

1. Those who are especially interested in this phase of physical therapy are referred to a recent article by George M. Lewis (New York M. J. & Rec., Aug. 20, 1931, p. 1190) and to the new work on physical therapy (W. F. Prior Company, now in press).

should possess adequate diagnostic skill and he should be skilled in the use of the various recognized methods of treatment. Such knowledge favors correct diagnosis and selection of a method or combination of methods best suited to the particular case. Space permits no more than an exceedingly brief mention of this important and highly specialized phase of the subject.

Basal Cell Epithelioma: It is possible to cure permanently the majority of epitheliomas of this type with expertly applied electrocoagulation. Solid carbon dioxide, cauterization and electrolysis are not nearly so efficacious.

Squamous Cell Epithelioma: When recognized early, before it has become invasive and before metastasis has occurred, this type of epithelioma can be cured with expertly applied electrocoagulation, or the lesion may be excised with the cutting current. The same statement applies to melanomas and malignant sarcomas. Solid carbon dioxide, cauterization and electrolysis are contraindicated. In general, when dealing with cutaneous malignant neoplasms, and before treatment is instituted, it is advisable for the physician to consult a colleague who has had extensive experience in the diagnosis and therapy of cancer.

200 West Fifty-Ninth Street.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, Secretary.

CHAPPEL LIVER EXTRACT (ORAL).—A solution of a water-soluble fraction extracted from fresh mammalian liver. One hundred cubic centimeters represents fresh liver, 800 Gm. (1 fluidounce represents 8.2 ounces avoirdupois).

Actions and Uses.—Chappel liver extract (oral) is used in the treatment of pernicious anemia. See Liver and Stomach Preparations, New and Nonofficial Remedies, 1931, p. 236.

Dosage.—From 15 to 90 cc. (4 to 24 fluidrachms) daily.

Manufactured by Chappel Bros., Inc., Rockford, Ill. No U. S. patent or trademark.

Chappel liver extract (oral) is prepared from equine livers selected from healthy animals, U. S. government inspected and as free as possible from fat. The livers are finely ground while still warm and extracted several times with water. After precipitation of the proteins by heat, the volume of the liquid is reduced in vacuo at low temperature, alcohol added to bring the alcoholic strength to 70 per cent, the precipitate filtered out, and the filtrate again evaporated. The residue is dissolved in a hydro-alcoholic menstruum containing 18 per cent of alcohol with a small quantity of flavoring added, so that one part of the finished extract represents eight parts of fresh liver.

DIPHTHERIA IMMUNITY TEST (SCHICK TEST) (See New and Nonofficial Remedies, 1931, p. 383).

Gilliland Laboratories, Inc., Marietta, Pa.

Diphtheria Schick Test Toxin, Diluted Ready for Administration-Gilliland.—A diphtheria toxin made by growing diphtheria bacilli in broth, aging and diluting with peptone solution according to W. E. Bunney (*J. Immunol.* **20**: 71, 1931). The product is ready for use, no diluent being required. The diluted toxin is of such strength that 0.1 cc. (one dose) given intradermally, constitutes one-fiftieth minimum lethal dose for a guinea-pig of 250 Gm. weight. Marketed in packages containing sufficient material for 10, 25 and 50 tests.

DIPHTHERIA TOXOID (See New and Nonofficial Remedies, 1931, p. 370).

The Gilliland Laboratories, Inc., Marietta, Pa.

Diphtheria Toxoid-Gilliland.—Prepared from diphtheria toxin whose L+ dose is 0.20 cc. or less by treatment with formaldehyde at a temperature of from 38 to 40 C. until its toxicity is so reduced that injection of five maximum human doses into guinea-pigs causes no local or general symptoms of diphtheria poisoning. The product is tested for antigenic potency by injection into at least ten guinea-pigs of one human dose each; if at the end of six weeks at least 80 per cent of the animals survive for ten days the injection of five minimum lethal doses of diphtheria toxin, the toxoid is considered satisfactory. Marketed in packages of one immunization treatment of two 1 cc. vials; in packages of ten immunization treatments of twenty 1 cc. vials; and in packages of fifteen immunization treatments of one 30 cc. vial. Each package is accompanied by a sufficient amount of diluted diphtheria toxoid for the reaction test.

SALYRGAN (See New and Nonofficial Remedies, 1931, p. 288).

The following dosage form has been accepted:

Ampules Salyrgan Solution, 2 cc.—Each ampule contains 2 cc. of a 10 per cent solution of salyrgan.

TUBERCULIN-KOCH (See New and Nonofficial Remedies, 1931, p. 364).

The National Drug Co., Philadelphia.

Von Pirquet Test for Tuberculosis.—Old tuberculin marketed in packages of one, three and ten capillary tubes; capillary tubes containing glycerin bouillon for control are included in each package.

ETHYLENE FOR ANESTHESIA (See New and Nonofficial Remedies, 1931, p. 39).

Walco Ethylene for Anesthesia.—A brand of ethylene for anesthesia-N. N. R.

Manufactured by Wall Chemicals, Inc., Detroit.

POLLEN ANTIGENS-LEDERLE (See New and Nonofficial Remedies, 1931, p. 28).

Ragweed Combined Pollen Antigen-Lederle is also marketed in the following forms:

Series E: five vials each containing 6,000 pollen units and five vials of sterile diluent with which to make the proper dilution of each dose.

Series F: five vials containing for each consecutive dose (16 to 20, inclusive) 3,600, 4,200, 4,800, 5,400 and 6,000 pollen units, respectively, and five vials of sterile diluent with which to make the proper dilution of each dose.

CONCENTRATED POLLEN ANTIGENS-LEDERLE (See THE JOURNAL, June 13, 1931, p. 2036).

The following dosage forms have been accepted:

Series A: five syringes containing for each consecutive dose (1 to 5, inclusive) 2.5, 5, 10, 20 and 35 pollen units, respectively.

Series B: five syringes containing for each consecutive dose (6 to 10, inclusive) 60, 100, 165, 275 and 450 pollen units, respectively.

Series C: five syringes containing for each consecutive dose (11 to 15, inclusive) 750, 1,200, 1,800, 2,400 and 3,000 pollen units, respectively.

Series D: five syringes, each containing 3,000 units.

Series E: five syringes, each containing 6,000 units.

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

W. A. PUCKNER, Secretary.

AMPOULES SODIUM CACODYLATE, FOR INTRAVENOUS USE (P. D. & CO.), OMITTED FROM N. N. R.

Ampoules Sodium Cacodylate, For Intravenous Use, marketed by Parke, Davis & Co., were accepted (although the Council believes that the intravenous administration of sodium cacodylate is unnecessary and undesirable) because Parke, Davis & Co. made no propaganda for the use of this method of administering sodium cacodylate, but merely supplied these ampules to meet a demand. The desired effects of sodium cacodylate may be obtained from oral administration of the drug or, in exceptional cases, the intramuscular route may be desirable. There is no need or rationality, however, for its intravenous administration.

The Council continues to hold that the routine intravenous administration of drugs is undesirable because of the complications that are inherent when this method of administration is used and because a false value of the administration of drugs by this route is likely to be conveyed. It has become convinced that the inclusion of sodium cacodylate ampules definitely proposed for intravenous use is likely to be taken to mean that in the opinion of the Council the intravenous use of sodium cacodylate is rational. Therefore, the Council has omitted Ampoules Sodium Cacodylate, For Intravenous Use (P. D. & Co.), even though the firm is making no claims which invite such use.

Committee on Foods

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

WILKINS COFFEE (GROUND)

Manufacturer.—John H. Wilkins Company, Inc., Washington, D. C.

Description.—Ground roasted coffee.

Manufacture.—Different varieties of "green coffee" from Mexico, Colombia and Brazil are weighed out in varying proportions to insure uniformity of the ultimate cup quality, are mixed, and are cleaned of foreign material by scalping machines. The clean coffee is again thoroughly mixed, and flame roasted in gas heated roasters. A relatively low temperature is used at first to dry out the coffee thoroughly; when a light brown color is obtained, the flame is increased to roast the beans throughout. The coffee is sprayed with water to stop the roasting immediately; it is discharged into perforated cooling cars and immediately subjected to air blast to chill the coffee thoroughly and quickly. The cold water and air tend to "seal" the oil in the beans, which would be readily lost otherwise. The cool roasted coffee is air cleaned by being lifted from storage pits into storage bins by air current. The force of the air carries the coffee out of the pits, but small stones and heavy material remain behind. The cleaned coffee is cut by steel knives into coarse granules. Fine material and "chaff" are removed by air currents in that they obstruct satisfactory extraction or percolation in the preparation of coffee beverage. The granular coffee is packed in "glassine" lined and "cellophane" wrapped cartons. The coffee is entirely machine handled throughout the processing and packing. The plant equipment is air cleaned twice each day.

Analysis (submitted by manufacturer).—

	per cent
Moisture	3.8
Ash	3.9
Fat (petroleum ether extract)	14.5
Total nitrogen	2.1
Protein nitrogen	1.7
Protein (protein N × 6.25)	10.6
Crude fiber	11.7
Carbohydrates other than crude fiber (by difference)	54.2
Caffeine	1.3

Calories.—3.9 per gram; 111 per ounce.

Claims of Manufacturer.—A ground roasted coffee for all table uses.

AMBOY AND MELODY BRANDS UNSWEETENED EVAPORATED STERILIZED MILK

Manufacturer.—Amboy Milk Products Company, Amboy, Ill.

Description.—Canned unsweetened evaporated milk.

Manufacture.—Fresh whole milk from tuberculin tested cattle and produced and delivered under prescribed conditions is used. Control is maintained over the dairies, the cows and the milking conditions by constant inspection. Delivered milk is inspected for flavor, odor and temperature. The methylene blue reductase test is applied for roughly determining its bacteria content. Samples are taken regularly for sediment tests.

The milk is quickly heated to nearly 100 C. in an enclosed heater, from which it passes to the vacuum pans where, at about 54 C., 60 per cent of the water is evaporated off. The concentrated milk is standardized to conform to the United States Department of Agriculture standard for evaporated milk and homogenized by being forced under high pressure through small apertures. The homogenization finely disperses the fat and prevents its separation later. The homogenized milk is filled into cans through small pinhole openings, which are immediately sealed. The sealed cans are processed at 116 C. for fifteen minutes and immediately cooled.

The laboratory keeps constant check on the milk as received and on the final evaporated product.

Analysis (submitted by manufacturer).—

	per cent
Moisture	73.7
Total solids	26.3
Ash	0.7
Fat	8.0
Protein (N × 6.38)	8.2
Lactose (by difference)	9.4

Calories.—1.4 per gram; 40 per ounce.

Micro-Organism.—The product is sterile.

Vitamins.—The vitamins A, B, C and G of the fresh milk are only slightly impaired.

Claims of Manufacturer.—These brands of evaporated milk are suitable for general cooking, baking and table uses and for infant feeding. The mixture of equal parts of the evaporated milk and water is not below the legal standard for whole milk. The curds formed in the stomach are smaller, softer and more readily digestible than those from raw or pasteurized milk.

FAIRWAY BRAND GOLDEN SYRUP
(Corn Syrup Flavored with Refined Syrup)

Packer.—D. B. Scully Syrup Company, Chicago.

Distributor.—Twin City Wholesale Grocers, St. Paul.

Description.—A table syrup; a corn syrup flavored with refiners' syrup.

Manufacture, Analysis, Calories, Claims of Manufacturer.—See these sections for Banner Blue Corn Syrup with Cane Flavor (THE JOURNAL, March 5, 1932, p. 817).

ZIM'S TWIST LOAF AND ZIM'S KEW BEE BREAD

Manufacturer.—Zim's Bread Company, Colorado Springs, Colo.

Description.—A white bread made by the sponge dough method.

Manufacture.—The sponge dough ingredients, patent flour of southwest wheat, water, yeast and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate are mixed in a high speed mixer. The sponge dough is fermented for from four to five hours, after which are added flour, water, salt, sucrose, lard and powdered skim milk to make the completed dough, which is cut into pieces of desired weight. The pieces are fermented for a short time, molded into loaf form, panned, further fermented, baked for from thirty to thirty-five minutes, cooled, and wrapped in wax-paper.

The factory, equipment and storage rooms are kept in strictly sanitary condition.

Analysis (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	32.8
Ash	1.9
Fat	3.0
Protein (N × 6.25)	9.5
Crude fiber	0.4
Carbohydrates other than crude fiber (by difference)	52.4

Calories.—2.8 per gram; 80 per ounce.

Claims of Manufacturer.—A bread of good quality.

GENERAL COMMITTEE DECISIONS

THE COMMITTEE ON FOODS AUTHORIZES THE PUBLICATION OF THE FOLLOWING GENERAL COMMITTEE DECISION ADOPTED FOR ITS OWN GUIDANCE AND FOR THAT OF FOOD MANUFACTURERS AND ADVERTISING AGENCIES ON FOOD ADVERTISING.

RAYMOND HERTWIG, Secretary.

"SLEEP INDUCING" CLAIMS FOR SPECIFIC FOODS

"Sleep inducing" claims are not permissible for specific food beverages because of their misleading character implying the possession of unique "sleep inducing" properties by the specific individual foods, and because they lead to grossly deceptive advertising practices. No objection is taken to statements averring the relaxation value of hot drinks at bedtime for inducing sleep and accompanied by recommendation for the particular food drink taken hot for this purpose.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MAY 7, 1932

THE INFLUENCE OF HEREDITY ON CANCER

Attempts to learn about the relation of heredity to cancer through studies of human material encounter too many fundamental difficulties to promise much valuable information; indeed, most such attempts in the past have not given acceptable results. Now that a better understanding of the principles of inheritance and of the sources of error in human statistical studies of cancer has been reached, it becomes possible to attempt to see whether anything can be learned by large scale statistical studies of human material, which take into account both our knowledge and our ignorance. The most extensive study of the sort that has yet appeared has been produced under the auspices of the Committee for Investigation of Cancer of the Norwegian Medical Society,[1] which has been functioning since 1908. The human cancer material collected since that date has been subjected to a careful analysis of its capacity to throw light on the influence of inheritance in determining the occurrence of cancer in man, as far as the recognized errors in such statistical material permits. There were available careful records of about 6,000 cancer cases reported since 1908. In all these cases as much information as possible was obtained in respect to the immediate relatives, and when the data were lacking they were collected by employing 115 medical students to spend their vacations in 1929 following up the family-histories all over Norway. Social conditions in Norway permit such a study to be made under more favorable conditions than in almost any other country. Thus there are available reports on cancer patients and their family histories over a period of twenty years.

Despite all these advantages, the material leaves much to be desired in view of the uncertainty as to the accuracy of the diagnoses in a large proportion of the cases. This source of error, unavoidable in all studies of human cancer material that are at present available, makes any conclusions reached merely suggestive rather than certain. Nevertheless, the large amount of material under consideration gives at least some probability to the conclusions. After a careful analysis of this vast quantity of data, with due consideration of possible errors, it is concluded that it is proper to assume that this statistical study of known cancer records indicates that hereditary disposition does constitute a factor in the etiology of cancer. It was found that cancer is distinctly more frequent among the brothers and sisters of cancer patients than in the general population of corresponding age, and also more frequent than in the husbands and wives of these cancer patients. There is also a distinctly higher incidence of cancer among those with a record of cancer in one or both parents than among those whose parents did not have cancer. Also, cancer is more commonly recorded in the parents of cancer patients than in the parents of the subjects without cancer. On the other hand, the absence of cancer in near relatives does not definitely protect against cancer any more than the presence of cancer in parents assures the occurrence of cancer in the offspring. This leads to the assumption that the occurrence of cancer is determined partly by the hereditary disposition and partly by other factors.

The evidence also points strongly to the influence of heredity on the localization of cancer. For example, when cancer occurred in the female relatives of cancer patients, the incidence of localization in the breast was 44.7 per cent among the relatives of those who had mammary cancer, in contrast to 16.5 per cent in the cancerous relatives of those whose cancer was not located in the breast. In respect to cancer of the uterus, the figures are 34.5 per cent, as contrasted with 8 per cent. As far as the material available permits of genetic analysis, it seems to point to the existence of at least two mutually independent hereditary factors, which seem probably to be of recessive character, although that cannot be positively determined.

This analysis probably represents about the best that can be done with human cancer material at the present time. It serves chiefly to support the value of the evidence coming from the laboratories where cancer in animals is being studied. This has shown conclusively that heredity is an important factor not only in the occurrence or absence of cancer in animals but also in determining the location and type of new growth. The report from Norway serves to strengthen the view that the rôle of heredity must be the same in human cancer, even if it cannot be seen so clearly because of the difficulties inherent in observing genetic phenomena in human biology. The status of our knowledge has been recently summarized by Wells:[2]

> Most of the major problems of medicine that can be solved by the study of human material alone have been settled as far as available methods and materials permit. Most of our remaining problems apparently will have to be settled by work

1. Ueber die Erblichkeit des Krebses, beurteilt nach dem vom Norwegischen Krebskomitee gesammelten Material, Georg H. M. Waaler, Skrifter Utgitt av Det Norske Videnskaps-Akademi I Oslo, I. Mat.-Naturv. Klasse, 1931, number 2.

2. Wells, H. Gideon: The Nature and Etiology of Cancer, Am. J. Cancer (supp.) **15**: 1919 (July) 1931.

with animals, which furnish the essential possibility of control of observations and results, a feature difficult, often impossible, when human material must be used for our investigation. This is particularly true of cancer, whether we are seeking light on the cause or the treatment. Cancer is a disease of such protracted development and course, so variable in its manifestations and duration, often so difficult of diagnosis and differentiation, that satisfactory study of many fundamental problems on the basis of clinical observation is almost or quite impossible. At the present time it seems safe to maintain that the existence of an hereditary influence on the susceptibility and resistance to cancer has been established both for man and animals. The exact mechanism of the hereditary influence has yet to be determined. The evidence offered by human material is conflicting, and inadequate both in amount and character to permit of satisfactory analysis. The studies so far made with spontaneous tumors occurring in laboratory animals show the possibility of modifying the occurrence of cancer in these animals in marked degree, and of determining by experimental genetics the site and character of the tumors that will arise. Therefore, we may reasonably look forward to the eventual finding of a definite explanation of the genetic mechanism which determines susceptibility and resistance to human cancer.

NICOTINE AND THE LIVER

A book on personal hygiene,[1] reminds us that "the poetic effusions of the lovers of the weed are no safer guide than the exaggerated and intemperate pronouncements of people who have idiosyncrasies against tobacco and simply hate it." This volume points out that tobacco and its smoke contain powerful poisons. What we get when we smoke was described a decade ago in THE JOURNAL.[2] A cigaret smoker who puffed away steadily for an hour might absorb as much as 36 milligrams of nicotine if he inhaled, and 27.5 if he only puffed—an amount sufficient certainly to cause ill effects.

It must be obvious to any one who contemplates the detrimental pharmacodynamic possibilities to which millions of contented smokers subject themselves daily that there must be some beneficent factor of safety at work to prevent or at least ameliorate the menace. One of these has recently been found to reside in the liver, that large glandular organ to which so many physiologic functions seem to be entrusted by nature and of which she expects so much. At the Mayo Foundation, Biebl, Essex and Mann[3] have observed, for example, that surgical removal of the liver in experimental animals renders them far more susceptible to the effects of nicotine, the alkaloid of tobacco. The Rochester experimenters remark that, from whatever angle their results are considered, the conclusion seems unavoidable that the liver is more active than other organs in removing nicotine from the circulation.

Biebl, Essex and Mann offer a number of suggestions in explanation of this remarkable potency of the liver in inactivating the tobacco alkaloid. They remark that if the ability to destroy nicotine is a function of living tissue it is possible that an active tissue like the liver would possess more of this ability; since the liver structurally is like a sponge, the contact of the hepatic cells with the vascular circulation is an intimate one; the possibility for surface phenomena, that is, absorption, condensation and dehydrogenation, becomes facilitated; and it is probable at any given moment that there are present in the liver a number of highly reactive chemicals that may easily combine with nicotine as it courses through this organ.

1. Fisher, Irving, and Fisk, E. L.: How to Live, New York, Funk & Wagnalls Company, 1925.
2. What We Get When We Smoke, editorial, J. A. M. A. **80**: 629 (March 3) 1923.
3. Biebl, M.; Essex, H. E., and Mann, F. C.: Studies on the Physiology of the Liver: XXIII. The Rôle of the Liver in the Destruction or Inactivation of Nicotine, Am. J. Physiol. **100**: 167 (March) 1932.

THE CALCIUM IN CHEESE

Cheese is probably the oldest of the milk products. For centuries it has been an important article of diet in the older countries. Cheese is a concentrated as well as a valuable food. Many varieties are, roughly speaking, one third water, one third fat and one fourth protein. A pound of cheese represents the protein and fat of about a gallon of milk of average composition. Most of the cheese produced in this country is now made in factories rather than on the farms. This represents, as a writer on food economics has remarked, another victory in the long series of conquests of the factory over home industry—conquests of machinery over drudgery. Some of the old prejudices against cheese among Americans are gradually being dispelled. This is particularly true of its alleged indigestibility. Many experiments undertaken in government laboratories have indicated the excellent utilization of cheese even when it is eaten in liberal amounts; yet in many homes it is still treated as a delicate titbit in the diet. A small cube of cheese with a large piece of pie seems often to be the conventional limit of concession; and the combination is not always served esthetically.

Of course, cheese is by no means an indispensable article of diet. Proteins and fats are secured from many other sources that may better suit the tastes or preferences of our population. Comparatively few persons realize, however, that, like the milk from which it is produced, cheese is one of the principal food sources of calcium, an element with which our dietaries are admittedly not always richly endowed. It has been pointed out that, unfortunately, individuals often dislike milk, and since the commonly used American Cheddar cheese is made from cow's milk, it would seem of value to determine whether its calcium is as well utilized as the calcium of milk. Cheese varies in its richness in calcium, depending on the mode of manufacture. Where "acid" procedures are used, much of the element is lost in the whey; hence there is a contrast between the cheeses prepared with rennet and those produced from soured milk. Blunt and Sumner[1] found the average content of calcium in American Cheddar cheese to be 0.71 per cent, in Swiss cheese 1.05 per cent, and in cottage cheese 0.077 per cent.

1. Blunt, Katharine; and Sumner, Emma E.: The Calcium of Cheese, J. Home Economics **20**: 587, 1928.

There have been numerous studies that demonstrate clearly the excellent utilization of calcium from milk. Indeed, milk seems to surpass green vegetables as a source of the bone-forming element. At Purdue University, Mallon, Johnson and Darby [2] have completed metabolism balance observations with diets planned to furnish an amount of calcium that would be close to the calculated average requirement for equilibrium and to meet the protein and energy requirements of the subjects. The diet for the study of the calcium retention of cheese consisted of American Cheddar cheese, lean round beef, cored apple, soda crackers, butter, and sucrose. In the milk study the diet was the same except that pasteurized milk replaced the American Cheddar cheese. Distilled water was used ad libitum for drinking. This was, indeed, a crucial test. The results seem to indicate that the calcium of the American Cheddar cheese was as well utilized as the calcium from the pasteurized whole milk. Thus another step has been taken in breaking down the unwarranted prejudices against an undervalued food.

Current Comment

FUNCTIONAL ACTIVITY AND MORPHOLOGIC DEVELOPMENT

One often hears the statement that suppression of the usual function of an organ or tissue results in deterioration. This is undoubtedly true in some instances. Disuse of skeletal muscles is likely to be followed by some atrophy or at least a notable decrease in the size of the contractile masses. There is always danger of misstatement, however, in extreme generalizations from specific or individual instances. This is doubtless true in the contemplation of the rôle assumed by function in the development of the central nervous system —an item of fundamental importance in neurology. An interesting investigation bearing on the questions at issue has lately been conducted by Goodman [1] at the University of Oregon Medical School in Portland. Animals were reared for long periods, under otherwise excellent hygienic conditions, in complete darkness. Subsequent histologic examination of various parts of the eyes—optic nerves or tracts, primary optic centers, or occipital cortices—failed to reveal any changes due to disuse of the optic functions. Goodman has concluded that, in the species studied, complete lack of optic stimuli from birth to 6 months of age results in no discernible changes in the visual pathways, it does not prevent the lid and pupil reflexes from responding to the first stimulus of light or the animal from quickly learning to respond to visual stimuli in regulating its behavior, nor is there any indication that the presence of the peripheral sensory visual field is a factor in the development and differentiation of the optic system or in the ability of that system to function. This corresponds with Burr's [2] conclusion that, on the whole, the weight of the evidence so far presented in the literature argues against the concept that functional activity is a potent factor in the morphogenesis of the central nervous system.

PURULENT EXUDATES VERSUS BACTERIOPHAGE

Clinicians have been confused by reports of prompt clinical improvement in certain patients under bacteriophage therapy, and with the equally conclusive and much more numerous reports of failures. A possible key to the harmonizing of these apparently contradictory observations is suggested by recent studies of Applebaum and MacNeal [1] at the New York Post-Graduate Medical School. Briefly these investigators found that purulent exudates, defibrinated blood and dilute normal serum have a marked inhibitory effect in vitro on the lytic action of antistaphylococcus bacteriophage, "sufficient to explain the persistent survival of the bacteria within the body of a patient receiving treatment with potent '[antistaphylococcus] bacteriophage." With purulent exudate, for example, this inhibition is demonstrable even in dilutions as high as 1:1,000. In contrast with this discouraging result, however, the same investigators found that, under the same test tube conditions, anticolon bacteriophage is not demonstrably inhibited in its lytic effects. Other specific bacteriophages have not yet been tested. These results are in marked contrast with the original d'Herelle postulate [2] that "the (lytic) process is not modified . . . by normal serum, ascitic fluid or urine," in spite of his reluctant admission that "bile is unquestionably inhibitory."

NEWSPAPERS AND HEADLINES

Americans are a headline reading people. Few read all of a newspaper; their impressions reflect just the large type that they see. This fact has resulted in some agitation relative to the heading frequently appearing in the press indicating that death in some cases has followed an operation. Thus Dr. Bransford Lewis asserts, and several editors of newspapers agree, that the heading "Dies Following Operation" can have no other effect except to bring about phobia against surgical procedures, perhaps fear so great as to result in postponed operation in cases in which operation may be the only method of saving life. Since surgery is undertaken with the idea of prolonging life, the constant reiteration of the phrase "Dies Following Operation" serves an antisocial purpose. Newspaper editors might well give the subject serious attention. The cause of death may be cholecystitis, appendicitis, brain tumor or any one of a number of serious conditions which might well be mentioned in the title of the article rather than the fact that operation failed to save the patient.

2. Mallon, M. G.; Johnson, L. M., and Darby, C. R.: A Study of the Calcium Retention on a Diet Containing American Cheddar Cheese, J. Nutrition **5**: 121 (March) 1932.

1. Goodman, L.: Effect of Total Absence of Function on the Optic System of Rabbits, Am. J. Physiol. **100**: 46 (March) 1932.

2. Burr, H. S.: J. Exper. Zool. **55**: 171, 1930.

1. Applebaum, M., and MacNeal, W. J.: J. Infect. Dis. **49**: 225 (Sept.) 1931.

2. d'Herelle, Felix: The Bacteriophage and Its Behavior, Baltimore, Williams & Wilkins, 1926, p. 71.

Association News

THE NEW ORLEANS SESSION

Special Railroad Rates

Members of the American Medical Association residing in Texas and Louisiana may avail themselves of the daily fare and one-third rates that will be in effect in those states during the annual session of the Association. This is cheaper than the regular fare and one-half rate on the Certificate plan in effect throughout the United States and Canada, during the New Orleans Session of the American Medical Association.

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts on Monday and Wednesday from 2:25 to 2:30 p. m. over Station WBBM (770 kilocycles, or 389.4 meters) and on Friday from 1:25 to 1:30 p. m. over Station WBBM and other stations of the Columbia Broadcasting System.

The program for the week is as follows:

May 9. Sanitation of Our Surroundings.
May 11. Hospital Day.
May 13. Is Pasteurization of Milk Necessary.

There is also a fifteen minute health talk sponsored by the Association on Saturday morning from 11:15 to 11:30 over Station WBBM, Chicago.

The program for the week is as follows:

May 14. Care of Normal Skin.

This schedule is based on Chicago Daylight Saving Time, one hour faster than Central Standard Time.

ANNUAL CONGRESS ON MEDICAL EDUCATION, MEDICAL LICENSURE AND HOSPITALS

Twenty-Eighth Annual Meeting, held in Chicago, Feb. 15 and 16, 1932

(Concluded from page 1573)

DR. HAROLD L. RYPINS, Albany, N. Y., in the Chair

FEDERATION OF STATE MEDICAL BOARDS OF THE UNITED STATES

FEBRUARY 16—MORNING

CORPORATE AND CONTRACT PRACTICE

The Practice of Medicine by Corporations

DR. F. C. WARNSHUIS, Grand Rapids, Mich.: In studying the corporate practice of medicine and its effects, the distinction must be drawn between the treatment of the defective, sick and injured by corporations organized for that purpose and the treatment of the defective, sick and injured at the expense of corporations, and under their direction, as an incident to the carrying out of other purposes for which the corporation was organized. In the first place, the practice of medicine by corporations seems to be clearly unlawful. When, however, a corporation engaged in industry or an insurance corporation employs physicians to treat the defective, diseased and injured, a somewhat different relation arises. The normal relation of a physician to such a corporation is that of an independent contractor, not that of an agent or employee of the corporation. His relation to the corporation employing him is identical with the relation that exists between a physician who is called on by the parent of a sick child to treat that child, and the parent himself. In the latter case, one would hardly say that the parent was practicing medicine because he had employed a physician to treat the patient for whose care he was responsible and incident to the relationship existing between them.

The exact relation of incorporated hospitals, dispensaries and clinics to the corporate practice of medicine is more difficult to define. Possibly those that are incorporated primarily for the relief of the sick and injured might be held not to be practicing medicine as a business, if they assumed primarily to furnish only hospital and nursing accommodations. Medical attendance might be regarded as a mere incident to the furnishing of such accommodations. On the other hand, corporations organized for the purpose of conducting hospitals, dispensaries and clinics for profit, with the prime object of furnishing medical services, would seem to be clearly within the category of corporations practicing medicine.

The alleged advantages of corporate medical practice are based on the presumption, of course, that a corporation practicing medicine would be operated according to the best of moral, ethical and professional standards. Just how corporations would be compelled to operate in that manner is not clear. Even under the rigid supervision exercised by the government over our banks, banking institutions supposedly of the highest order fail, and the stockholders and depositors lose their money. Just so, corporations engaged in the practice of medicine would, under the best of supervision, occasionally fail, with a loss, not of money, but of health and of life. The lack of personal responsibility on the part of the officers of the corporation, other than the attending physicians, directly in charge of patients, would not tend to establish and maintain the best morale in such practice. The intimate personal relationship between physician and patient would tend to disappear. Of course, a patient would still be at liberty to employ a physician not practicing under the supervision, direction and control of a corporation, but whether private practitioners could exist in competition with corporations with the ability of the corporation to make a popular appeal and to serve cut rate services is questionable. Whether the conversion of physicians into the hired men of corporations would tend to induce the most desirable class of men to enter the practice of medicine is questionable.

That the practice of medicine by corporations would tend to reduce such practice to a business and to destroy it as a profession seems probable. That it would break down the intimate and independent relations between physicians and patients also seems probable. Probably, too, it would tend to make the incomes of physicians more nearly dependent on their years of practice under some corporation than on their professional ability, and thus diminish individual initiative and interest. That these handicaps would tend to prevent the most desirable type of men from entering on the practice of medicine seems likely.

The corporate practice of medicine is with us, in the form of incorporated clinics, and is probably here to stay. Other corporations that might be named are either actually practicing medicine or trenching so closely on the medical field that their activities cannot be distinguished from medical practice. Until the medical profession knows the reason for the development of such corporate practice and its probable effect on the community and on the medical profession, it should hesitate to approve corporate practice generally but should undertake to find some way in which advantages of such practice, if it has any, may be preserved and augmented, and its disadvantages eliminated.

I believe that the following conclusions are warranted: Corporate practice of medicine, legalized, would be tremendously inimical to the people, state and nation. It would exert a detrimental influence on the progress of scientific medicine and medical education. It would reduce a profession to a trade occupation, thereby sacrificing all our sacred traditions, and debase the art of medical practice. It would terminate the sacred relation of patient and physician. Corporate practice of medicine should not be condoned, tolerated or abetted.

Contract Practice

DR. R. G. LELAND, Chicago: This article appeared in full in THE JOURNAL, March 5, page 808.

The Economics of Industrial Medicine

DR. CAREY P. MCCORD, Cincinnati: This article appeared in full in THE JOURNAL, April 9, page 1237.

Do Corporations Practice Medicine?

MICHAEL M. DAVIS, PH.D., Chicago: There is no question whatever that there are a large number of corporations which undertake various acts which, while not legally the practice of medicine, nevertheless influence the practice of medicine very greatly in their locality.

The question as to whether or not corporations practice medicine legally has been settled and is important only from the standpoint of this question: How far does the economic action of certain organizations, most of which are corporations, affect the practice of medicine by physicians in their respective communities? From that point of view it presents a problem which both the public and the medical profession must face, that the action of hospital organizations, whether corporations or not and whether owned by physicians or not, of clinics and of other organizations of the industrial type does create new types of competition among physicians that are different from the traditional type of purely individual competition. It creates competition between groups or sections and professions, one or the other, and gives certain advantages of organization to one group as against physicians who are practicing individually; it is creating a very serious problem for a considerable number of the members of the medical profession in many communities.

However, to my mind the question is not a legal but an economic one. The analysis of the situation leads to an economic and not to a legal issue. It is more important, on the whole, to state the economic facts than the legal ones. The legal issue is pretty much of a closed issue, but the economic issues are wide open.

The second point that seems to me important in looking ahead is that we are dealing with a situation all over the country which is in process of rapid change. It is rather astonishing that this great development of industrial medicine began only in 1911. There must be some kind of correspondence between the rate of professional adjustment and the rate of social advance. It is extremely important that the medical profession, and particularly through its organization, study these economic issues and not waste too much time on merely legal ones.

The primary thing, which is essential to maintain in these relationships between the medical profession and corporations or organizations of various types, whether corporations or not, that are influencing the practice of medicine, is for the medical profession to take a firm stand on that which it is right to take a stand on; namely, what are the proper policies and standards of medical practice in the care of the patient? To insist that medical service shall be good, shall be in the interest of the patient, a position which the public will back up 100 per cent.

On the other hand, the medical profession must recognize that many of the changes which have come about have come about from sources entirely outside the profession, such as compensation for accident, and great changes will come about from sources outside the profession in the future. Whether that is desirable or not might be discussed, but that it is going to happen there is no question. The medical service of a community must adapt itself to changes in the economic situation and the social situation.

A radical change in our population, which shifts the population from a farming community as it was in colonial times to an urban community as it is predominantly becoming, is bound to bring radical changes in social life and medical practice with it.

A situation of that type requires that the studies that are made by the profession involve cooperation between the profession and the public. Nothing would be more unfortunate in dealing with this question of corporate medicine than to approach it merely from the legalistic aspect and to approach it merely from the standpoint of how something shall be preserved which has worked under different conditions. Nothing is more unfortunate than an attitude of opposition to change or an inability to recognize that change will take place and take place at rates which may not be under the control of any professional groups.

I feel strongly that we want, and certainly I hope for, evolution and not revolution in these medical matters. But certainly it must also be recognized that evolution in medical matters must proceed at present more at the rate of the automobile than at the rate of the stage coach. It is not advisable that when the tempo of American life is keyed and the rate of social advance is keyed to the automobile that the rate of the omnibus of advancing society shall upset a medical bicycle.

DISCUSSION ON CORPORATE AND CONTRACT PRACTICE

DR. GILBERT FITZ-PATRICK, Chicago: I agree more thoroughly than ever with President Eliot when he said years ago that this nation was suffering from a profound pestilence, a very great blight, and its name was standardization: standardization in education, standardization in industry and in commerce. I think that the minute we undertake to standardize the principles of the practice of medicine in all its ramifications to such an extent that we are of one unit opinion, we shall have suffered completely from that blight. The two hospitals with which I am connected have relegated to their board of trustees just one function, and that is to finance the hospital. Beyond that, they have nothing to say about the operation of that hospital. That is the prevailing opinion, in my mind, which should exist in every hospital. The physicians and the staff should operate the hospital in the manner in which they, the only people properly trained, know how to operate a hospital. When it comes down to corporate medicine, to contract medicine, to insurance medicine, the physicians should write the contracts and should dictate the policies, the methods and the principles under which they will work.

DR. I. D. METZGER, Pittsburgh: Any organization, any institution, whether it be hospital or otherwise, must have the responsibility placed on one person, and a patient coming into a hospital must be assigned to one person who is licensed. In our own state we have the training of interns who are not licensed, in hospitals, but in all cases the insistence is made that that patient is referred to a certain licensed physician, and everything that is done on that patient, whether by an intern, nurse or any one else in the hospital, must be done under the direction of a licensed physician who has charge of the case. One of the most critical situations in the state of Pennsylvania relative to this matter arises in connection with the nurse. Corporations employ a nurse for the purpose of rendering first aid. The nurse finds herself to be so valuable that she continues to carry the case through. That situation became so acute several years ago that it was necessary to give a definition of first aid. The definition that has been accepted in the state of Pennsylvania for first aid is "first care to patient." This may be given by any one, whether a licensed physician, a nurse or other person. But that care must not extend through continuous treatment. That care shall, in the state of Pennsylvania, be lifted within twenty-four hours, because, obviously, every patient could be brought to a doctor's office or to a hospital within that length of time. That offsets the argument of corporations that their nurses and their licensed physicians are only rendering first aid. It makes a definite, effective, concise point in deciding these problems.

DR. CHARLES B. PINKHAM, Sacramento, Calif.: The question of corporations practicing medicine resolves itself back to the secretary of state, it appears to me, and there should be some legislation to prohibit the secretary of any state from issuing papers of incorporation to institutions which propose to practice medicine. Not long ago I counted up in our state, from the books of the secretary of state, that we had fifty-four health insurance groups. These groups propose to furnish medical service at a small payment per month. The investigation of these fifty-four groups discloses that a large percentage of them, after collecting a large sum of money from various people throughout the state, closed their offices, and the service was not rendered, although the promoters of the organization had obtained the money. At the last session of the legislature in California there was a bill introduced which proposed to legalize the various insurance companies. It was actively opposed by the medical men and defeated by a close vote. If organizations are to be permitted to sell health insurance which agrees to furnish medical service, they should be required by the state to impound a sufficient sum of money to guarantee proper service to the policyholder. I understand that a recent decision in the state of Colorado in the case of "Painless" Parker holds that corporations cannot practice medicine.

MR. HARRY E. KELLY, Chicago: The suggestion was made that a special license should be given for the practice of industrial medicine. I think your inquiry into that subject will resolve itself into an answer in the negative. I was employed one time by a medical association to draw up a bill for the restriction of surgery to persons who passed a special exami-

nation in surgery. The bill was presented to the state legislature and was roundly opposed by substantially all the medical men. I myself thought it a bad bill. I do not see how it is possible to supply the public with medical services on that basis. In any town that is able to support only one physician, it would be necessary to have four or five kinds of physicians, one who practices a certain kind of surgery and one who practices a certain sort of medicine, the result being ultimately that the division in specialties would result in depriving the small town of adequate medical service. In other words, it seems to me that the general practitioner (because you are never going to be able to get away from him) can take care of the needs of the rural communities and small towns. So, I should say in regard to that suggestion, I think it is not practical.

DR. CHARLES E. HUMISTON, Chicago: I don't see how you are going to get around the legal aspects. If the law says you must not do a thing, good intentions will not save you from the penalty of your act. If it is illegal to do a thing, you must not do it. Correct the law; don't try to override it. The practice of medicine as a business in Illinois is a misdemeanor, and those who lend their name to it have already laid the foundation for the revocation of their own licenses.

DR. MORRIS FISHBEIN, Chicago: I agree entirely with Mr. Michael Davis that we are confronted at the present time not with the question of legal definition but with the question of conditions as they are. Today there are in the United States thousands of corporations practicing medicine. The law may say in any state that they must not practice medicine, but they are practicing medicine, exactly as there are thousands of quacks practicing medicine who the law says should not practice medicine. Under these circumstances, we are concerned with influencing the public to a proper understanding of what the practice of medicine is and of the danger to the public that is inherent in the practice of medicine by corporations and by quacks. Only when we have an enlightened public can we enforce the law. A law that has not the support of the public is a dead letter on the books. It has absolutely no value to the community, to the profession that it proposes to uphold or to any one else. It is very well for any group interested in supporting the status of the individual physician, through the law, to carry their legal case to the highest court possible, but until we have the support by the public, the carrying of the case to the high court is not going to mean much. Mr. Davis presented an interesting point when he attempted to show that the practice of medicine by a lay board of trustees is not possible. I think we have all seen in Chicago that a lay board of trustees may practice medicine. The Public Health Institute, as formerly conducted, before the establishment of a medical advisory board to dominate the policies of that institution from a medical point of view, was conducted to make money. It was for the purpose of making money that an electrocardiographic department was established in that institution; a considerable number of patients had electrocardiographic studies who did not need them. That department was run for what it could make and not primarily for the benefit of the public. When the lay board called in a medical advisory board to give advice as to the proper method of conduct of the institution, remarkable changes occurred. A change of medical staff was made, and men were brought in to practice as specialists, not men brought in because they would work for a pittance under a directorate interested primarily in making money. Whenever an institution for medical care is conducted primarily for making money, it is a menace to the public. When an institution for medical care is conducted for the purpose of giving medical service, it is an institution for the advancement of medicine and for the good of the public. There exists a strange belief that when a group of men organize as a corporation they are entitled to do a great many things that an individual cannot do. Thus a corporation practicing medicine is likely to feel itself entitled to advertise its services to the public and thereby to draw in a considerable number of people who must come from the attention of the private physician. Universities, which of course we all recognize do practice medicine, get unusual publicity. Today advertising is not necessarily purchased space in the newspaper. Today the greatest advertising that is done is done through the public relations council, who may never buy an inch of space but who get advertising through news columns that is far more valuable than any space that may be purchased. That situation cannot be controlled by law but only through enlightened public opinion. When a university employs a surgeon full time to practice surgery for the university, and when that surgeon draws a salary of from $10,000 to $15,000 a year, and when his department has $120,000 a year net profit which is turned over to the promotion of the university, the university is a corporation practicing medicine, and exploiting the services of an individual physician for the benefit of the institution. It remains for the public to determine whether it wants medicine practiced on that basis or whether it wants medicine practiced primarily for the good of the individual patient. There is an old saying, "Whose bread I eat, his song I sing." The physician who draws a salary from a corporation to take care of the help is employed by the corporation. His responsibility is to the corporation and not to the patient. Any time that a man draws his income from a higher source, his responsibility is to the source that pays him and not to the person that he may be serving. When a physician employed full time by a university or a corporation practicing medicine is sued for malpractice, that is not his responsibility, because the corporation carries the expense of the suit, carries the insurance on the man's service, and the corporation bears the expense, not the individual. If the individual had to bear the expense, he could not afford to work for the corporation. If the individual gets too many malpractice suits, he is fired by the corporation. We must all realize that the intimate responsibility of the physician to the individual patient must be the basis of all good medical service. Any scheme that may be developed for changing medical practice in the future must have that as a basic requirement or it is bound to fail. I agree with Mr. Michael Davis that the times are moving rapidly and that medicine must not proceed on a bicycle at a time when other people are flying around in airplanes. But I have noticed that a good many of the people who fly in airplanes and blimps come down suddenly and thereafter have little to say in the community. The majority of the people are willing to proceed at railroad speed rather than to fly around, because they do not think flying is quite safe for the present. In the same way, I believe that it is all right for enlightened leaders to experiment with new schemes of medical practice. I favor experimentation and research as the only way of finding the correct solution to our problem, but I believe that the mass of the medical profession and the mass of the public may better go along for the present, depending on general practitioners for 90 per cent of their medical care. The time may come when we can all fly around safely and won't even need to think about putting on parachutes.

DR. THOMAS J. CROWE, Dallas, Texas: I am not especially concerned with the legal phase of corporate practice but I am particularly concerned with the sentimental side. I don't care about how many groups practice, but I should insist, if I had my way, that the group should be concerned individually. If a doubt arises as to the condition of the patient, if a danger signal appears, it should be noticed not by the intern, not by the nurse, not by somebody who is interested only in the time when he can get off, but by the man in whom the responsibility for the outcome of that case rests, the surgeon or the physician. The group has lost all of that sympathetic touch, all of that deep, sincere interest in the patient that was characteristic of the old family physician.

DR. WILLIAM R. DAVIDSON, Evansville, Ind.: If corporations have no authority to practice medicine, proceedings can be instituted. It is a simple matter. I had a case come up in our state. I asked the attorney-general to institute suit against a corporation. I let him have a copy of the correspondence to show what they proposed to do. We didn't have to sue, because they voluntarily quit that practice. This shows what can be done by a board properly supervised by the courts. If the state board has the backbone to get up and interpret the law and then go in and have it properly construed, I think a lot of the discussion we have had won't be necessary.

DR. R. G. LELAND, Chicago: I should like to point out that in two states where contracts are authorized by law the contract doctor is the insurer. The insurer is unsupervised as to financial resources and as to performance under his con-

tract. He determines the rate. He administers the insurance fund, and he determines what service shall be rendered, renders that service personally or through agents in his hire, and retains the unexpended portion. That, again, is the kind of practice for gain which we believe is not to the best interests of the public. In all the attempts at clarifying this very disturbing practice of contract medical practice, we believe that it may be necessary to resort to some additional clarifying definitions. However, in an attempt to clarify the situation with regard to contract practice, we should never acquiesce in any retraction from or reduction of the standards or the principles of ethics which have been established by the American Medical Association. If possible, those principles should be raised and safeguarded.

MICHAEL M. DAVIS, Ph.D., Chicago: We have examples in the best organized hospitals all over the country of a partnership between a lay organization or a governmental board and a responsible medical staff organized for service and ordinarily including some of the senior and best medical men of the community. We have in the hospitals all over this land examples of such partnership and division of function between a lay group and a medical group. The lay group is concerned with finance and problems of administration and public relationships, and the medical group is concerned with the professional standards for the care of patients and the other phases of the professional work of that hospital. That is a reasonable division of function. In any practical plan for the control of and keeping within proper bounds the influence on medical practice by corporations, the introduction into corporate practice, or corporate activities affecting medical practice, of disinterested medical advice directed toward the standards of that service is fundamental to its success. The medical profession can do nothing which will have more public support than emphasizing the necessity of good standing. In this whole problem a fundamental point to bear in mind is this: The medical profession cannot dominate even if it would, and the public should not, although it can. Cooperation is fundamental to success on either side.

FEBRUARY 16—AFTERNOON

DR. HARRY E. MOCK, Chicago, in the Chair

JOINT SESSION OF COUNCIL ON PHYSICAL THERAPY AND AMERICAN CONFERENCE ON HOSPITAL SERVICE

PHYSICAL THERAPY IN HOSPITALS FOR VETERANS

Physical Therapy in Army Hospitals

DR. ROBERT U. PATTERSON, Washington, D. C.: The forms of physical therapy commonly used in army general hospitals include massage, thermotherapy, hydrotherapy, electrotherapy, heliotherapy, passive motion, and various forms of exercise. The Physical Therapy Clinic at Walter Reed General Hospital, Washington, D. C., is a well organized means of treating soldiers and veterans. Its equipment includes high frequency machines for diathermy, fulguration, and autocondensation, machines for delivering sinusoidal and galvanic currents of various types, faradic machines for stimulation of muscle and nerve, and various lamps for radiant heat and light treatments. There is also a well equipped gymnasium having measuring devices for determining the range of motion; mats for Goldthwait exercises; walking boards for flatfoot work; ankle exercises; finger flexor and extensor exercising apparatus; pulley weights and stall bars; mirrors for posture work; a stationary bicycle, and various devices for exercising the upper and lower extremities, including rowing machines and parallel bars. The Physical Therapy Clinic is also well equipped for utilizing baths in the treatment of suitable cases. The Schwartz type carbon arc is also used. It is believed, however, that the multicarbon type is more satisfactory.

In this clinic during the past year, 175 men with chronic arthritis were treated. The results were decidedly beneficial in about 75 per cent. Permanent improvement resulted in those cases in which the focus of infection was first located and removed. Thirty-one men with bronchitis were treated, resulting in some decrease in pain and coughing. Twenty-five men with dermatitis were treated, with beneficial results in most cases. Twenty-six men with lumbago were treated, resulting in marked decrease in pain and muscle spasm in all cases. Forty-four men with myalgia were treated, resulting in marked decrease in pain. In thirty-one cases of pneumonia, diathermy was given and decrease was noted in the pain, and it is believed that resolution was hastened in most cases. Twenty-six men with neurasthenia were treated; definite improvement was noted in practically all cases. Seventy-three men with psychoneuroses were treated, definite improvement being noted in 75 per cent. A large number of injuries were given treatment, including 20 fractures, 51 knee traumatisms, 23 muscle injuries, 37 sacro-iliac injuries, and 67 sprains and strains. Beneficial results of varying degree were obtained. It may be noted that physical therapy is regarded as invaluable in the treatment of fractures and joint injuries. No permanent improvement was noted from physical therapy in lymphangitis, progressive muscular atrophy, arteriosclerosis, tinnitus, meningitis, neurosyphilis, multiple sclerosis or amyotrophic lateral sclerosis.

The army at its largest institutions hospitalizes annually for the Veterans' Administration many thousands of veterans of all wars. This is done under the sanction of laws relating to the care of veterans by furnishing to the Veterans' Administration a total of 2,100 beds in these institutions, which they utilize to the full. In this way the army is engaging extensively in the application of the benefits of physical therapy to these veterans and to the officers and enlisted men of the active list of the army who are in our hospitals. It is conservative to say that more than half a million physical therapy treatments are administered to army and veteran patients in all army hospitals each year and that the soldiers and veterans receive an immense amount of benefit from such treatment.

Physical therapy has a definite place in the army. The only limit placed on the administration of these therapeutic agencies is through either lack of funds or the actual shortage of necessary trained personnel. There is hardly a hospital in the army that is not equipped to furnish physical therapy in some measure. The six general hospitals are fully equipped. I believe that it is generally accepted by the medical profession that no modern institution can be considered complete unless it has a fully equipped physical therapy department.

DISCUSSION

DR. MALCOLM T. MACEACHERN, Chicago: Physical therapy has been found of benefit in such a wide variety of cases, including after-treatment of fractures and traumas, metabolism disorders and mental disorders, that almost every general hospital would find considerable use for a physical therapy department. Hospitals seeking guidance in the organization and management of a modern physical therapy service are advised to observe the following requirements: (1) that hospitals carrying on physical therapy have a well organized department under competent supervision; (2) that the department be properly planned and equipped in accordance with present-day standards; (3) that there be adequate, trained personnel under competent supervision; (4) that a comprehensive system of records be available in the department and filed in an accessible manner; (5) that a definite procedure be established for the reception, treatment and discharge of patients, and (6) that as far as possible there be periodic analysis of the work of the department to determine the results. If the physical therapy department is to achieve clinical results, it is imperative that the director be a medical graduate especially trained in physical therapy. Without a medical education and special training in physical therapy he is not capable of judging the type of treatment best suited to the patient's condition or of outlining a prescribed course of treatment that will aid in rehabilitating the patient. Physical therapy is of value only when properly administered and may do harm if given by a person not having a knowledge of anatomy and physiology. The educational standard for technicians should approach that established by the American Physiotherapy Association. Besides a high school education, technicians should have had a course in physical education or in physical therapy conducted by a recognized training school for nurses or accredited school of therapy. Practical experience is also necessary before the student can be called a full-fledged physical therapy technician. Technicians should always work under the supervision of the medical director.

DR. HARRY E. MOCK, Chicago: There are few physicians who are physical therapists, and yet every one of us, especially the surgeons who see cases that particularly need it, must get the physical therapy point of view and an understanding of physical therapy so that we can cooperate with and guide that most intelligent, common sense, useful individual who administers physical therapy, namely, the well trained physical therapy technician. We have to depend on her. Ninety per cent of physical therapy is intelligent hand work by that technician, and if the technician isn't available it is intelligent hand work by the physician, his assistant or some one of his associates who can manipulate or teach that patient, for largely physical therapy is teaching the patient active exercise. Physical therapy is the growing intelligence in the sense of protecting function and restoring function, and we must begin to think of it and talk of it more from that attitude than from the attitude of diathermy or hydrotherapy or electrotherapy, or some of these various things, all of which help but which after all do not make up the crux of physical therapy.

Occupational Therapy: Its Aims and Developments

MR. T. B. KIDNER, New York: As a layman, it seems to me that the increasing realization in the past few decades of the tripartite nature of man—mind, body and spirit—has had a most important effect in increasing the use of occupation as an adjuvant to medical, surgical and nursing measures for the relief of persons disabled by accident or illness.

One of the best arguments for the use of curative occupations in practically all types of illness and disability is set forth in the definition of occupational therapy devised by the Boston School of Occupational Therapy, which is as follows: Occupational therapy aims to furnish a scheme of scientifically arranged activities which will give, to any set of muscles or related parts of the body in cases of disease or injury, just the degree of movement and exercise that may be directed by a competent physician or surgeon. It stimulates heart action, respiration and blood circulation accurately as prescribed, and at the same time it yields some of the joy and satisfaction that wisely selected, wholesome occupation provides in normal life. It thus takes its place with nursing, medicine and surgery as one of the important departments of medical art.

In other words, it satisfies, in many cases, that desire to create useful things—to do something—that is a concomitant of our having been born with hands, controlled by the brain to satisfy our social needs and desires. Adequate training in the medical, psychologic and sociological features of occupational treatment is now provided in the leading occupational therapy training schools.

Many years ago, the American Occupational Therapy Association was urged by leading physicians interested in the curative occupations to establish a national register, or directory, of qualified occupational therapists. Acting on the advice of officials of the American Medical Association and of the national nursing organizations, the association decided, as a first step toward the establishment of the national directory, to set up minimum standards of training. The directory for the current year—the first issue—is now in the printer's hands and will soon be available for distribution to hospital authorities and others who are interested in occupational therapy.

May I add one more general statement? Occupational therapy provides a means of conserving and bringing into play whatever remains to the sick and injured of capacity for healthy functioning. The patient is aided in mobilizing his physical, mental and spiritual resources for overcoming his disability. The tedium and consequent depression occasioned by the enforced idleness of illness are relieved, suffering is diminished, the care and management of the patient present fewer difficulties, convalescence is hastened, and the danger of relapses, invalidism and dependence is reduced.

DISCUSSION

DR. F. J. GAENSLEN, Milwaukee: Only careful study of the disability, including records of range of motion and muscle power as well as proper selection and planning of work by a trained occupational therapist, will result in the achievement of the best results. Much of the work in occupational therapy as used in the average civilian hospital falls short in this regard. A realization on the part of the medical profession of the value of occupational therapy as an important step in the rehabilitation program is essential if what is actually within reach is to be accomplished.

DR. ABNER T. CLOPTON, Hines, Ill.: I think that the real aim of occupational therapy, in short, is to assist in restoring to normal, or as near normal as possible, an individual who is suffering from some disability, whether physical or mental. Tersely speaking, I think that is the aim of occupational therapy. We are all agreed that occupational therapy should be under the supervision of a medical man or woman, or physician you might say, who understands the real objects of occupational therapy. As Mr. Kidner stated, the curing of the patient is the end-product. It has been my privilege for the last ten or twelve years to be associated with reconstruction work in the Veterans' Administration, and there has been a tendency in the past, not so much now, to stress the finished product or to gage the value of occupational therapy on the product that the individual turns out, which shouldn't be.

DR. MANDELL SHIMBERG, Riverside, Ill.: I am primarily a surgeon, and I believe that just as drugs constitute the pharmacopeia of so-called internal medicine, so does physical therapy in its broadest sense constitute the pharmacopeia of trauma and surgery. One of the main things to be done is to educate most of the surgeons to the fact that occupational therapy, and physical therapy, is not something which they send their patients for when they have nothing else to think of, but something which is vital in the restoration of function of an injured member. I agree with Dr. Mock that occupational therapy and physical therapy are absolutely as one. Physical therapy paves the way for occupational therapy, and occupational therapy does the rest.

DR. J. S. COULTER, Chicago: The hospitals for mental cases in the state of Illinois are not allowed to sell their end-products in occupational therapy. The hospital for veterans throughout the United States, at least the ones I know, are selling their products, and I heard recently a severe criticism of occupational therapy in the Veterans' Bureau hospital because men were using this department not for therapy but simply to make articles that they could sell. That corresponds to the old army post exchange. They said that time after time and for years the same men have been coming up to this department, where they sell goods to the other patients, articles that they have made in the occupational therapy department. I think it would be well if the Veterans' Bureau hospital would adopt the motto that Mr. Kidner brought forth; that is, that production is merely incidental; the article made is a by-product, and the cured patient is an end-product. I think that is most important in veterans' hospitals and would do a great deal to stop criticism of occupational therapy in Veterans' Bureau hospitals.

MRS. G. SAMPLE, Hines, Ill.: The materials used in the occupational therapy department in veterans' hospitals are provided by Uncle Sam, and he requires that we return to him money for the materials. Therefore, when a man makes an article in a veterans' hospital he usually pays for his material and then the article is his. When he sells it, of course he sells that article, which is his own. We return the cost price of that material to the United States treasury. The criticism about the boys selling things is too bad. I think it is done, and I do think the boys overdo the selling of the things. We don't sell them. They sell their own articles, but they pay Uncle Sam for the cost price of the material.

MR. T. B. KIDNER, New York: The curative workshop in Milwaukee was established by the Junior League, which is doing good work in this field of curative occupation in other parts of the country. In the morning it is used by the workmen's compensation insurance companies. In the afternoon it is used for crippled children, and the curative workshop and the physical therapy department are side by side. That is being done in several other orthopedic hospitals today in which the close connection between the two phases of treatment, physical therapy and occupational therapy, is being stressed.

Importance of Adequate Records in Physical Therapy Departments

DR. WILLIS S. PECK, Ann Arbor, Mich.: It is almost the rule rather than the exception that the clerical activities of physical therapy services have been developed by meeting the problems of the day as they arise instead of by careful fore-

thought of the end-results desired over a period of years. In view of this state of affairs it does not seem out of place to attempt an analysis of the clerical functions required to build an efficient physical therapy service. Reduced to the least common denominator, the record requirements in physical therapy are few and extremely simple. In developing a record system ample provision should be made for these fundamental requirements before other activities are loaded on the clerical force. They should be kept so simple that there will be no excuse for omission in any individual case.

There would seem to be no argument that the basic record must provide for:

1. Information giving the identity of the patient, such as name, sex, age, hospital number and address.
2. Clinical diagnosis, description of physical observations, and comments of the referring physician.
3. Request by the referring physician for consultation with the physical therapist.
4. Consultation notes by the physical therapist.
5. Prescription for treatment.
6. Detailed notations of treatment as administered.
7. Notations as to progress of the case under treatment.
8. Final outcome of the case.
9. Classification of the case for cross index purposes.
10. Financial account of the case.

All of this information should be readily available in the clerical office of the department. Most of this information should be available on the patient's hospital record. The financial statement and dates of treatment should be on file in the business office of the hospital. The simplest way of gathering and recording this information will be the most reliable way and consequently the most desirable as well.

Therefore, it is unwise to have various forms printed until one considers how and where they will be used. As a rule, complicated forms are seldom completely filled out and therefore lose much of their value. The hydrotherapy room, steaming and dripping wet, is scarcely the place to attempt record keeping. Furthermore, the time of the technician is too valuable to press him into service as a clerk, just as the clerk, if a good one, is too valuable as such to be utilized as an indifferent technician. Records and files belong in the clerical office and every effort should be made to see that that is where they are kept.

DISCUSSION

DR. J. S. COULTER, Chicago: In a hospital with which I am connected we have a simple record system for the reason that we have limited help. We have two technicians who usually treat about thirty patients or more a day. This means that the technicians can only give a minimum of time to a record system. Therefore, in this hospital our record system is confined to two forms, which work very well. We have one form which we call a clinical record sheet, which is a different color from any other sheet in the hospital records, which is sent to the departments, filled out by the internist, the visiting physician or his internist, or the surgeon or his internist and sent to the department as a requisition. It simply contains the name of the patient and a diagnosis and request for physical therapy. This then becomes part of the man's clinical chart, which is filed in the hospital records. In the department we keep a card record system with the name and diagnosis, which is filed alphabetically under the man's name when he is there, and when he leaves and becomes an inactive patient one card is filed under his name so that we can find his record, and the other is filed under the diagnosis. So these two forms present nearly all the information we need and are very simple.

DR. C. O. MOLANDER, Chicago: The record forms at Michael Reese Hospital for physical therapy and occupational therapy are divided under two main headings; namely, the general record forms, which take care of our general routine work, and the special forms, which were devised for the purpose of making more careful studies of various phases of the work and also to give a physician in a particular field valuable information as to how physical and occupational therapy might better aid him. In a number of instances some of the forms were made together with the assistance of the physicians on our staff, who consented to carry on certain investigations in physical therapy and occupational therapy. Records such as those used at Michael Reese will also be of incalculable aid in evaluating the results of clinical and laboratory research in physical medicine. Records to be of any value must be easily understood, simple and yet complete. They must be kept accurately and checked constantly, and reports sent at definite intervals to the physicians referring cases.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

State Medical Election.—Dr. Samuel S. Kirkpatrick, Selma, was elected president of the Medical Association of the State of Alabama, April 22, and Dr. Douglas L. Cannon, Montgomery, was reelected secretary. The next annual session of the society will be held in Montgomery, April 18-21, 1933.

CALIFORNIA

Food Handlers to Be Examined.—The city council of San Diego adopted an ordinance, March 16, by which physical examination of all persons engaged in purveying foodstuffs to the general public is made mandatory. This measure prescribes sanitary methods of handling foodstuffs and provides penalties for failure to cooperate in safeguarding the public health.

Personal.—Drs. John Gallwey and Arthur W. Scott, San Francisco, have been appointed regents of the University of California; their terms will expire in 1948.——Dr. Herman J. Wickman has been appointed health officer of Perris, succeeding Dr. Chester R. Brown.——Dr. John F. Martin was elected commander of the recently organized medical post, number 441, of the American Legion, Los Angeles.

Dean Appointed.—Dr. Arthur E. Coyne, Los Angeles, has been appointed dean of the Los Angeles Division of the College of Medical Evangelists, to succeed Dr. Llewellyn C. Kellogg. Dr. Coyne is a former medical missionary. Dr. Kellogg was appointed director of graduate study. This is a newly created department to give graduate work to the graduates of the school who are located in nearby towns. Dr. Kellogg had been head of the department of anatomy in the college for a number of years.

No Diphtheria in Palo Alto.—There has been but one death from diphtheria in Palo Alto since 1911. Active immunization against diphtheria is carried on continuously under a plan whereby the work is done by local physicians using material furnished by the health department. In 1931, the incidence of communicable disease dropped to 33.6 cases per thousand of population, the lowest rate since 1926. There were but two cases of diphtheria in the city during 1931. The infant mortality rate for Palo Alto in 1931 was 13.5, the lowest ever recorded in that city, two infant deaths being reported during the year. The city has had full time health service since 1910.

DISTRICT OF COLUMBIA

Personal.—Brig.-Gen. Walter Drew McCaw, U. S. Army, retired, will be awarded the honorary degree of doctor of science by the Medical College of Virginia at commencement, May 31. General McCaw, who was graduated from the college in 1882, is now living at Woodstock, N. Y.

Society News.—At the meeting of the Medical Society of the District of Columbia, April 27, Dr. Samuel Benjamin spoke on "Renal Diabetes," and Dr. Joseph H. Bryan, "History of Laryngology and Rhinology, and the Influence of America on This Specialty."

Pan American Medical Association.—At a meeting in the Embassy of Mexico, Washington, April 5, a chapter of the Pan American Medical Association was organized for the District of Columbia with the following officers: Surg. Gen. Hugh S. Cumming, president; Dr. J. M. Puig Casauranc, ambassador of Mexico, and Dr. Jose G. Lewis, vice presidents, and Aristides A. Moll, Sc.D., secretary. The Pan American Medical Association purposes to bring about closer relations among the medical profession of the several American republics, among other things, through international periodic meetings, publications and exchange of visits. It aims to do in an unofficial capacity in the medical field the same kind of work

accomplished by the Pan American Sanitary Bureau in the public health field under official auspices. General offices are at present located in Havana, Cuba.

GEORGIA

Combine Clinics.—With the dedication of a pathologic clinic, April 1, clinics for the white and Negro units of the Grady Hospital, Atlanta, were combined in one laboratory, situated at the intersection of tunnels linking the hospital divisions. The new clinic was formally presented to the hospital staff by Superintendent J. B. Franklin. Dr. Russell H. Oppenheimer, dean, Emory University Medical School, with which the hospital is affiliated, made the dedication address. Dr. Roy R. Kracke, chairman of the department of pathology and bacteriology at Emory, spoke on "Ideals in Laboratory Work," and Dr. Jack C. Norris, pathologist at Grady Hospital, accepted the clinic on behalf of the staff. The Steiner cancer division of Grady Hospital will continue to operate as a separate unit, it is reported.

ILLINOIS

Society News.—The Henry County Medical Society was addressed at Kewanee, May 5, by Drs. William Thalhimer and Carl A. Hedblom, Chicago, on "Diagnosis of Poliomyelitis in the Preparalytic Stage, and the Therapeutic Use of Convalescent Poliomyelitis Serum" and "Differential Diagnosis and Treatment of Acute Abdominal Lesions."——Dr. Hugo O. Deuss addressed the Jackson County Medical Society, April 21, at Carbondale on "Use of Iodized Oils in Bronchitis and Bronchiectasis."——Dr. Edward Lee Dorsett, St. Louis, addressed the Adams County Medical Society, April 11, on "Breech Presentation and Extraction."

Chicago

Hospital News.—The tumor clinic of the Michael Reese Hospital has acquired 4.5 Gm. of radium, of which 4 Gm. will be used in the form of a radium "bomb." Dr. Alfred Blalock, Nashville, Tenn., addressed a meeting at the hospital, April 21, on "Shock: A Study of Its Production and Treatment."

Diploma and License Stolen.—Dr. William J. Stewart, Jr., recently reported that his diploma, showing graduation from the University of Pennsylvania School of Medicine in 1927, and his license to practice in Ohio were apparently stolen some time in March. Dr. Stewart has made application for duplicate copies.

Society Offers Services.—The Chicago Medical Society has offered its services to the schools of the city during Youth Week, May 9-14, in order that as many children as possible may receive physical examinations during that period. Blanks will be provided which, following the examination, will be returned to the school teacher. If there is no family doctor, the child may be taken to any neighborhood physician. The examination will be as complete as possible.

Society News.—The Chicago Pathological Society will be addressed, May 9, by Drs. Hugh A. McKinley and Arthur Weil on "Tumors of the Hypophysis Associated with Internal Hydrocephalus"; Dr. Isadore Pilot, "Lymphogranuloma Inguinale"; Cornelius S. Hagerty and Dr. Willis Stanley Gibson, "Carcinoma of the Stomach in a Child Three Years of Age," and Drs. Eugene C. Piette, Oak Park, and Eugene F. Traut, "Pontile Hemorrhage in a Young Woman."——Dr. Norman W. Roome addressed the Chicago Surgical Society, May 6, among others, on "Effect of Hemorrhage on Lowered Blood Pressure," and Drs. Victor L. Schrager and Earl O. Latimer, "Carcinoma of the Bile Duct."

INDIANA

Department of Illustration Formed.—Announcement has been made of a new department of illustration and photography at Indiana University School of Medicine. Work of the department will include drawings and paintings for use in illustrating lectures, textbooks and other forms of instructional service. James F. Glore, graduate of the Chicago Art Institute, has been selected to head the department.

Society News.—Dr. Neal M. Loomis, Jr., Marion, discussed "Prenatal and Postpartum Care" before the Grant County Medical Society in Marion, March 22.——At a joint meeting of the Sullivan County Medical Society and Mary Sherman Hospital staff, April 6, Dr. Thurman B. Rice, Indianapolis, spoke on "The Newer Things in Bacteriology."——The Jasper-Newton County Medical Society was addressed, March 31, by Dr. Alexander A. Goldsmith, Chicago, on "Lesions of the Gastro-Intestinal Tract."

Study at Biologic Station.—Work especially adapted to medical school students will be offered at the Indiana University biologic station, Winona Lake, June 18-August 12. This station, which is a field laboratory, will be under the direction of Will Scott, Ph.D., head of the university zoology department. Work will be offered in invertebrate zoology, limnology, advanced zoology, vertebrate zoology, embryology, and research in limnology, embryology and vertebrates. Emphasis will be laid on field work and on such lines of work as can be given to better advantage at the station than with the equipment of the university laboratories and under the restrictions imposed by a recitation schedule during regular university sessions.

IOWA

Personal.—Dr. Henry B. Young, Burlington, recently observed his eighty-first birthday. Dr. Young, who is still engaged in practice, has been a practitioner in Iowa for fifty-three years.——Dr. Harry E. Ransom has been appointed health officer of Des Moines, succeeding Dr. Harley L. Sayler.

Symposium on Endocrinology.—A symposium on diseases of metabolism and endocrinology began in Spencer, April 12, to continue for ten weeks, the last half of the series to be held in Emmetsburg. The speakers' bureau of the state medical society arranged the program at the request of the Upper Des Moines Medical Society. Representatives of the University of Iowa, University of Nebraska, University of Minnesota and the Mayo Clinic, and physicians throughout the state are participating in the series. The subjects considered include anatomy and physiology of the endocrines, diseases of the pituitary and the parathyroid, physiology and diseases of the thyroid, gonads, heredity and disease, diabetes mellitus, physiology and histopathology of the blood, leukemias, anemias in children, and allergy.

KANSAS

Society News.—Dr. Joseph E. Welker, Kansas City, Mo., among others, addressed the Douglas County Medical Society, recently, on "Treatment of Cardiac Edema."——A recent meeting of the Sumner County Medical Society was addressed by Drs. Paul C. Carson, Wichita, on "Forms of Convulsions in Children," and George E. Cowles, Wichita, "Maternal Mortality and Morbidity Rates and Their Control."

Society Celebrates Fiftieth Anniversary.—The Lyon County Medical Society, Emporia, observed the fiftieth anniversary of its founding with an all day meeting, April 11. The program included a discussion of clinical cases in children by Dr. Frank C. Neff, Kansas City, Mo., and a talk by Dr. Ralph H. Major, also of Kansas City, on "Cardiac Irregularities." Both physicians conducted clinics. In the evening, Dr. Frank A. Eckdall, Emporia, addressed the banquet meeting on "History of the Lyon County Medical Society," and Dr. Paul S. Mitchell, Iola, presented "Greetings from the Kansas State Medical Society." Dr. Jabez N. Jackson, Kansas City, Mo., was the principal speaker, and Dr. Fred D. Lose, Madison, president of the society, was the toastmaster. The county society has forty-one members. Dr. Samuel P. Reser, who is still actively engaged in practice at Hartford, is the only living charter member.

MAINE

License Revoked.—The license of Dr. Elmer F. Gould, Camden, to practice medicine and surgery, was revoked at a meeting of the state board of registration in medicine, March 8, following his conviction on a charge of performing an abortion.

MARYLAND

Personal.—A new commissioner of health for Baltimore to succeed the late Dr. C. Hampson Jones will not be appointed, it is reported. Dr. Huntington Williams, director of health, has taken charge of the department as the acting commissioner. Dr. Williams was formerly secretary of the New York State Department of Health.

Dr. Boggs Awarded Decoration.—Dr. Thomas R. Boggs, Baltimore, colonel in the army medical corps reserve, has been awarded the decoration of the Purple Heart. The citation was for "services as chief of medical services, air service, A. E. F." Dr. Boggs has been associate professor of clinical medicine at Johns Hopkins University School of Medicine since 1915.

Red Cross Flour Rejected.—Two carloads of flour out of a shipment of twenty carloads, sent to Baltimore by the Red Cross Relief Association, were condemned by the flour inspector there as unfit for food, the Chicago *Tribune* reports. The other eighteen cars of the lot were declared to be low grade

and unfit for bread. An investigation is under way. Laboratory tests of both the wheat and the flour showed there was nothing wrong with it, newspapers reported, except that it had a slight odor, which was not thought to be harmful and which disappeared in baking. The flour was said to have been ground from number 2 hard winter wheat with only 4 per cent damage, which is permissible for that grade by the inspection department.

Society News.—Dr. Donald C. Balfour, Rochester, Minn., among others, addressed the semiannual meeting of the Baltimore City Medical Society, April 1, on surgical and clinical problems of the stomach.——At the meeting of the Society of Hygiene and Public Health, March 23, Dr. William H. Sebrell, Jr., Washington, D. C., discussed "Control of Pellagra," and Raymond Pearl, Ph.D., Baltimore, "Contraceptive Practices and Fertility in One Thousand Women."——Dr. William G. Savage, county medical officer of health for Somerset, England, gave a public lecture on "The Tuberculosis Milk Problem in England," April 12, at the School of Hygiene and Public Health of Johns Hopkins University.——The West Baltimore Medical Association was addressed, April 19, among others, by Dr. Max Kahn on high voltage roentgen therapy for malignant and benign tumors. Dr. Arthur G. Barrett was installed as president at this meeting.

MICHIGAN

Migdalski Alias Mandell.—John F. Migdalski, Detroit, was arrested, April 14, following a girl's complaint that she had been attacked upon appearing at the doctor's office to seek a position. The office was said to be maintained by Migdalski under the name of Mandell. Police files disclose this to be his eighth offense on similar charges, it was stated. Migdalski's license was revoked, June 10, 1925, for unprofessional conduct and offenses involving moral turpitude (THE JOURNAL, June 27, 1925, p. 2009). In that year he was sentenced to serve from five to ten years in prison for an attempt to attack a 15 year old girl. It was not until Migdalski's recent arrest that the suspicions of the state board were confirmed that Mandell and Migdalski were the same person. He received his degree of doctor of medicine from the University of Michigan Homeopathic Medical School in 1914.

Immunization Program.—With the object of eliminating diphtheria in Oakland County in the next few years, the Oakland County Medical Society and the health departments of Pontiac and the county have joined in a program for the education of parents. Each month each physician will receive a post card for every baby delivered by him that is between 6 months and 1 year old. If the baby was born outside the city limits of Pontiac the card will be sent from the office of the county health department; if within Pontiac, from the city health department. The doctor will sign the card and mail it to the parents. If no response is obtained from the card, a personal call will be made by a public health nurse at the end of the ninth month and again at the end of the year. Cards will be sent the parents each month for six months, after which a card will be mailed to the baby, as a reminder that the child has not been vaccinated. The plan is intended to reach preschool children, from whose ranks diphtheria is said to cause the greatest number of deaths.

MISSOURI

Hospital Raises Farm Products.—All farm products to be used through the ensuing year at State Hospital number 2, St. Joseph, will be raised on the institution's farm. Crews of patients and fourteen attendants assigned to the farm and garden division began planting as soon as the weather permitted. The hospital rents 1,568 acres of farm land, and last year 30,000 gallons of vegetables and fruits raised on the farm were canned. The canning factory was installed late last season and it is planned that more than 100,000 gallons of produce will be canned this year. Last year products raised on the farm and used by the institution or sold amounted to $163,900.87.

Society News.—The St. Louis Trudeau Club was addressed, May 5, among others, by Drs. Benjamin Margulois on "Coexistent Pulmonary Tuberculosis and Diabetes," and Julius A. Rossen and Ralph L. Ehrlich, report of study of reaction of white blood cells to tuberculin.——Dr. Richard L. Sutton, Kansas City, addressed the Caldwell-Livingston County Medical Society at Chillicothe, March 15, on diagnosis and treatment of cancer of the skin.——At a meeting of the Jasper County Medical Society at Joplin, March 15, Dr. Fred Irwig, Kansas City, spoke on "Allergic Manifestations in Hay Fever, Asthma, Gastro-Intestinal Disturbances and Migraine."——Dr. William W. Graves, St. Louis, talked on "Relations of Health, Disease and Education," March 11, before the Greene County Medical Society at Springfield. Dr. Cyrus E. Burford, St. Louis, addressed the society, April 8, on "Diagnosis and Management of Stone in the Kidney and Ureter."

MONTANA

Society News.—The Murray Clinic, Butte, observed its twenty-fifth anniversary, April 19, with an all-day clinic. This was the first clinic established in Montana.——At a meeting of the Silver Bow County Medical Society in Butte, recently, a committee was appointed to consider the organization of a cancer clinic. The members are Drs. James C. Shields, Herbert D. Kistler and John R. E. Sievers.

Board of Health for Indian Reservation.—The first reservation board of health was established on the Blackfeet reservation in Browning, March 1. Under regulations promulgated by the Secretary of the Interior, the appointment, Oct. 2, 1931, of Dr. Herman F. Schrader, Browning, as Blackfeet reservation health officer was the initial action taken toward the organization of this board. He, with Dr. Octavius M. Spencer, Helena, district medical director, Forrest Stone, superintendent, and Dr. William F. Cogswell, secretary, state board of health, held the organization meeting, March 1. At this time it was decided that the board should consist of three members: the superintendent of the reservation; the senior physician of the reservation, who will be reservation health officer, and the president of the Indian Business Council. These men are, respectively, Mr. Stone, Dr. Schrader and Joe Brown. At a meeting of the board, March 26, Mr. Stone was elected president and Dr. Schrader secretary. Regulations of the state board of health were adopted as the regulations of the reservation board of health. In accordance with an act of Congress, approved Feb. 15, 1929, regulations, promulgated by the Secretary of the Interior, Aug. 15, 1931, designated physicians in the Indian Service on reservations in Montana as health officers of such reservations when appointed by the state board of health. These officers will be known as reservation health officers, according to the regulations, and will bear the same relation to the state board of health as do county and local health officers under the laws of the state.

NEW HAMPSHIRE

State Medical Meeting at Manchester.—The one hundred and forty-first annual meeting of the New Hampshire Medical Society will be held at Manchester, May 17-18, with headquarters at the Hotel Carpenter, under the presidency of Dr. George C. Wilkins, Manchester. Included on the program will be Drs. Benjamin P. Burpee, Manchester, on "The Conduct of Normal Labor"; Carleton R. Metcalf, Concord, "Postmortem Lethargy"; Emery M. Fitch, Claremont, "Inversion of the Uterus," Fred E. Clow, Wolfeboro, "Anorexia Nervosa"; Arthur J. Cramp, director, Bureau of Investigation, American Medical Association, Chicago, "Patent Medicines"; Albert C. Johnston, Gorham, "Some Pathologic Problems," and Byrl R. Kirklin, Rochester, Minn., "Diagnosis of Early Pulmonary Tuberculosis." Drs. Douglas Quick, New York, and Burton T. Simpson, Buffalo, will participate in a symposium on cancer, their subjects to be, respectively, "Radiation in Operable Cancer" and "Responsibility of the Medical Men in the Control of Cancer." At the meeting, Wednesday, Dr. George W. Weymouth, Lyme, will be presented with a fifty year membership gold medal.

NEW JERSEY

Personal.—Dr. William Jerome Arlitz, Hoboken, was the guest of honor at a dinner given by more than 100 of his colleagues at the Hotel Astor, New York, April 7, in honor of his fortieth anniversary as a practitioner of medicine. Dr. Arlitz is chief surgeon of the Lackawanna Railroad and the Public Service Corporation of New Jersey.

Health at Trenton.—Telegraphic reports to the U. S. Department of Commerce from eighty-five cities with a total population of 37 million, for the week ended April 23, indicate that the highest mortality rate (21.5) appears for Trenton, and for the group of cities, 11.9. The mortality rate for Trenton for the corresponding period last year was 15.2, and for the group of cities, 12.3. The annual rate for eighty-five cities for the sixteen weeks of 1932 was 12.6, as against a rate of 13.8 for the corresponding period of the previous year. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

NEW YORK

Second Annnual "Fever" Conference. — Announcement has been made of the second annual fever conference at the University of Rochester School of Medicine, Rochester, May 9. Among the out-of-town speakers will be Dr. Leland E. Hinsie, New York, "Treatment of General Paralysis by Radiothermy"; Dr. Clifton T. Perkins, Worcester, Mass., "Progress Report on the Treatment of General Paralysis by Diathermy"; Eunice Frazier, Dayton, Ohio, "Changes Occurring in the Spinal Fluid of Patients with General Paralysis Following Treatment with Short Wave Fevers"; John S. Oartel, D.D.S., and George M. McKinley, Pittsburgh, Pa., "A Preliminary Report of the Effect of Radiation on Infected Extracted Teeth"; Joseph W. Schereschewsky, Boston, "Heating Effects of Very High Frequency Currents and the Approximate Dielectric Constants of Tissue and Organic Fluids." Members of the staff of the university will also take part in the program.

State Medical Meeting at Buffalo.—The one hundred and twenty-sixth annual meeting of the Medical Society of the State of New York will be held at the Hotel Statler, Buffalo, May 23-25, with Dr. William D. Johnson, Batavia, presiding. Dr. Edward Starr Judd, Rochester, Minn., President, American Medical Association, will address the meeting on "Some of the Problems Associated with Peptic Ulcer." Included among other speakers on the program will be Drs. Priscilla White, Boston, on "Prognosis of Diabetes of Childhood"; Harrison S. Martland, Newark, N. J., "Pathology"; Nathaniel W. Winkelman, Philadelphia, and John L. Eckel, Buffalo, "Lead Encephalopathy: A Clinical and Pathologic Study"; Hyman L. Levin, Buffalo, "Rôle of the Child Guidance Clinic in the Prevention of Schizophrenia (Dementia Praecox)"; Bernard Glueck, New York, "Scope and Limitations of a Psychoanalytic Approach to the Psychoses"; Albert D. Kaiser, Rochester, "Value of Immune Blood in the Treatment of Measles and Whooping Cough"; Leo Spiegel and Joseph Jordan Eller, New York, "The Spinal Fluid in Syphilis"; William J. Ryan, Pomona, "Significance and Detection of Tuberculosis in School Children"; Ross Golden, New York, "Chronic Duodenal Stasis," and Virginia C. Tannenbaum, Buffalo, "Physical Therapy in Gynecological Office Practice." There will be symposiums on empyema, anesthesia, therapy, exophthalmos, therapeutic use of biologic products, retrobulbar neuritis and maxillary sinusitis.

New York City

Personal. — Dr. Phoebus A. Levene of the staff of the Rockefeller Institute for Medical Research has been elected a corresponding member of the Bavarian Academy of Sciences. —Dr. Jacob L. Moreno has been appointed consultant in psychiatry and criminology to the National Committee on Prisons and Prison Labor.

Medical Gifts to Columbia. — Nicholas Murray Butler, LL.D., president of Columbia University, recently reported gifts amounting to more than $35,000 to the university. Among them were the following for medical research:

General Education Board, $6,750 for the maintenance of a subdepartment of tropical medicine.
Dr. Alfred F. Hess, $650 for the Nutritional Research Fund.
National Tuberculosis Association, $524 for research on tuberculosis.
American Academy of Ophthalmology and Otolaryngology, $500 for research in ophthalmology.

Secret Prescription Codes.—At a meeting of the Comitia Minora of the Medical Society of the County of New York, April 11, the following ruling of the board of censors was adopted:

It is resolved that, with the exception of certain narcotic preparations intended for internal use, the issuance by any physician of any prescription in secret code be held to constitute prima facie evidence of *illicit financial relation* between the physician and the pharmacist involved in the transaction *and of the solicitation, demand* or *acceptance* of a rebate or commission for the reference of the patient with the prescription to the particular pharmacist.

Child Guidance Bureau Opened.—Headquarters for the Bureau of Child Guidance of the New York City Board of Education, established at the beginning of the present school year (THE JOURNAL, July 18, 1931, p. 825), were opened, April 6, at 228 East Fifty-Seventh Street. Leon W. Goldrich, Ph.D., is director. As a result of preliminary work, about 7,000 teachers are reported to have enrolled for courses in mental hygiene and related subjects. Present economic conditions are considered to have increased the need for the bureau.

Dr. Brown Resigns as Dean of New York University. —Dr. Samuel A. Brown, for sixteen years dean of New York University and Bellevue Hospital Medical College, has resigned and has been made a member of the university council. Dr. John Wyckoff, secretary of the medical college since 1916, was appointed dean, and Dr. Currier McEwen, associate in medicine at the hospital of the Rockefeller Institute, assistant dean. Dr. Wyckoff's appointment is effective immediately, and that of Dr. McEwen, July 1. Dr. Brown was president of the New York Academy of Medicine, 1925-1926. He has been connected with New York University for many years.

OHIO

Combined Liberal Arts and Medical Program.—Beginning in 1932, a seven year combined liberal arts and medical program will be in effect at the University of Cincinnati College of Medicine. All premedical students entering the College of Liberal Arts in 1932, and subsequently, will conform to the seven year program. The entrance requirements to this course are those of the College of Liberal Arts. The degree of bachelor of arts is granted on the joint recommendation of the faculties of the colleges of arts and medicine at the end of the first medical year, and the bachelor of medicine degree at the end of the fourth year. The student must obtain a minimum of ninety-four credits in the college of liberal arts as specified in the program. For the first year of the medical college course, thirty credits will be allowed, making a total of 124 credits for the combined course. In order to obtain the bachelor of arts degree from the University of Cincinnati in the combined course, residence in the third year of the course is required.

PENNSYLVANIA

Fifty Years in Practice.—Dr. John H. Sandel, Danville, was given a dinner by the Montour County Medical Society recently to celebrate his fiftieth anniversary in the practice of medicine. He was also presented with a silver loving cup. Dr. Sandel has been practicing in Danville since 1911.

Society News. — Dr. Ralph H. Henry, Allentown, was elected president of the Pennsylvania Physical Therapy Association at its annual spring meeting in Philadelphia, April 18-22, in joint session with the committee on education of the Philadelphia County Medical Society. Dr. Waldemar T. Fedko, Gordon, was made secretary. Dr. Wilmer Krusen, Lansdowne, was toastmaster at the dinner meeting of the association.

RHODE ISLAND

Seminar on Mental Adjustments. — Frederic L. Wells, Ph.D., director, psychologic laboratory, Boston Psychopathic Hospital, will conduct a seminar on mental adjustments at the State Hospital for Mental Diseases, Howard, during May.

Society News.—The Rhode Island Medical Society was addressed, March 3, by Drs. Daniel L. Lynch, Boston, on "Demonstration of the Artificial Larynx"; Henry Jackson, Jr., Boston, "Agranulocytic Angina and Allied Diseases"; Louis E. Phaneuf, Boston, "Interposition Operation in the Treatment of Uterine Procidentia," and Dennett L. Richardson, Providence, "Treatment of Acute Poliomyelitis with Convalescent Serum."

SQUTH DAKOTA

Society News. — Dr. Joseph C. Ohlmacher, Vermilion, addressed the annual meeting of the Whetstone Valley Medical Society in Waubay, April 11, on "Certain Fundamentals of Cardiovascular Disease." Dr. Truman A. Hedemark, Revillo, was elected president.——At a recent meeting of the Sioux Falls District Medical Society, the speakers were Drs. Gilbert Geoffrey Cottam, Sioux Falls, on "Management of Thyrotoxicosis"; August E. Bostrom, DeSmet, "Public Health Matters," and Carl William Forsberg, Sioux Falls, "The Economic Waste of Medical Care."——The Rev. George McKay, Wessington, addressed the Huron District Medical Society, April 14, on "Early Days in the Middle West."——The Aberdeen District Medical Society was addressed, recently, by Drs. Ernest S. Watson, Aberdeen, on "Intracranial Birth Injuries"; Cecil E. Lowe, Mobridge, "The Undescended Testicle," and Frank I. Darrow, Fargo, N. D., "Some of the Latest Advances in Medicine."——Dr. Byron A. Bobb, Mitchell, addressed the Watertown District Medical Society, April 12, on "Treatment of Ruptured Appendixes." —— The former Powell Hospital, Sisseton, has been newly equipped and reopened as the Sisseton Hospital.

UTAH

Von Bode Gets Fifteen Years. — Paul von Bode, Salt Lake City, was convicted of performing an illegal operation, recently, and sentenced to fifteen years in the penitentiary. Information in possession of the state department of registration indicates, it was stated, that von Bode bought a diploma from the Pacific Medical College of Los Angeles which became extinct in 1916, although several diplomas of the institution

were reported sold in subsequent years. He was licensed in Colorado in 1920, but is not licensed to practice medicine in Utah. In 1914 he was licensed as a barber. He is licensed as a chiropractor in Idaho.

WASHINGTON

Society News.—Dr. Donald V. Trueblood, Seattle, talked on "Dissemination of Cancer of the Breast," May 2, before the King County Medical Society, and Dr. Charles F. Eikenbary, "Treatment of Fractures of Femur in Children from Functional Standpoint."

Medical Lectures and Clinics.—The sixteenth annual graduate course of medical lectures and clinics will be held at the University of Washington, July 18-22. The fee is $15. Included on the program will be Drs. Harry E. Mock, associate professor of surgery, Northwestern University Medical School, Chicago, "Traumatic and Industrial Surgery"; Joseph L. Miller, clinical professor of medicine, Graduate School of Medicine of the Division of the Biological Sciences, University of Chicago, "Diagnosis and Treatment of Diseases with Especial Emphasis on Therapeutics"; Francis Carter Wood, director, Cancer Research Institute, Columbia University, New York, "Early Diagnosis and Treatment of Cancer," and Porter P. Vinson, Rochester, Minn., "Diseases of the Lungs, Bronchi and Esophagus." Further information may be had from the University of Washington, Extension Division, Seattle.

WISCONSIN

Cancer Committee Appointed.—A permanent committee on cancer, representing each of the council districts of the State Medical Society of Wisconsin, has been appointed by President Otho Fiedler, Sheboygan, to study a cancer survey recently made in the state and make recommendations to the spring meeting of the council. Dr. William D. Stovall, Madison, is chairman and the members are:

Drs. Edward H. Spiegelberg, Boscobel; Frank W. Pope, Racine; Herman E. Wolf, La Crosse; Hartwick M. Stang, Eau Claire; James F. Wilkinson, Oconomowoc; Guy R. Duer, Marinette; William E. Ground, Superior; Frank Gregory Connell, Oshkosh; Stanley J. Seeger, Milwaukee; Paul F. Doege, Marshfield; Friedrich Eigenberger, Sheboygan.

Society News.—Dr. Carroll W. Stuart, Chicago, addressed a joint meeting of the Winnebago County medical and dental societies, Oshkosh, March 11, on "Relation of Oral Health to Systemic Diseases."——Speakers at the meeting of the Medical Society of Milwaukee County, Milwaukee, March 11, were Drs. Stanley J. Seeger, on "Treatment of Burns"; Harold W. Shutter, "Application of Organotherapy to Gynecology and Obstetrics," and John J. McGovern, "How Can We Control the Destiny of the Medical Profession?"——Dr. Charles A. Doan, Columbus, Ohio, addressed the Milwaukee Academy of Medicine, March 15, on "Clinical Hematology with Special Reference to the Leukopenic State."——Dr. Craig D. Butler, Oak Park, Ill., addressed a joint meeting of the Marathon County medical and dental societies, Wausau, March 14, on "The Relation Between Bodily Health and the Development and Maintenance of Sound Teeth."——Drs. Alfred A. Strauss, Chicago, and Stanley J. Seeger, Milwaukee, addressed the Racine County Medical Society, Racine, March 17, on "Peptic Ulcers" and "Carcinoma of the Rectum," respectively.——Dr. William Snow Miller, emeritus professor of anatomy, delivered an illustrated lecture on "The Life and Times of Dr. William Beaumont," April 19, at the University of Wisconsin, Madison, under the auspices of the Sigma Sigma fraternity.

GENERAL

New Source of Radium.—A new source of radium that is expected to break the Belgian monopoly is reported to be in process of development on the shores of Great Bear Lake near the arctic circle. Gilbert LaBine, Canadian mining engineer, explored the region by airplane and discovered a black rock which he thought might be pitchblende. Tests at the University of Alberta proved that the ore contained from 100 to 200 mg. of radium to the ton, as much as the best ores in the Belgian Congo. The Canadian deposits are concentrated and easily accessible to the surface, which is not true of those in Africa. Before the development of the Belgian radium in 1922, the United States was producing the bulk of the world's supply from ores found in Colorado and Utah, but the working was discontinued as a result of the Belgian competition. There is at present less than a pound and a half of radium in the world, valued at $70,000 a gram.

Society News.—The American Committee for the Control of Rheumatism will hold a conference on rheumatic diseases, May 9, in New Orleans. On the program will be Drs. Philip B. Matz, Washington, D. C., on "Clinical and Economic Factors of Arthritis in 450 Ex-Members of the Military Service"; Thomas Preston White, Charlotte, N. C., "Relation of the Digestive Tract to Chronic Arthritis"; E. Starr Judd and Philip S. Hench, Rochester, Minn., "Gallbladder Disease in Chronic Infectious Arthritis: Results of Cholecystectomy"; William Paul Holbrook, Tucson, Ariz., "Climate Therapy for Chronic Arthritis: Results in 500 Cases"; James Craig Small, Philadelphia, "Desensitization Treatment of Chronic Arthritis." Other speakers will be Drs. Rendil Garfield Snyder, New York; Edward K. Cravener, Chester S. Keefer and Walter K. Meyers and Millard Smith, all of Boston.——Dr. Harvey Cushing, Boston, was elected president of the Congress of the American Physicians and Surgeons, succeeding Dr. Theobald Smith, Princeton, N. J. Dr. John T. King, Jr., Baltimore, succeeds Dr. Walter R. Steiner, Hartford, Conn., who resigned on account of ill health, after holding the position for twenty-two years. Dr. John E. Lane, New Haven, Conn., was reelected treasurer. The next meeting of the congress will be held, May 2-3, 1933.——The Association of Record Librarians of North America will hold its annual meeting in Detroit, September 13-16, in conjunction with the American Hospital Association.

Medical Bills in Congress.—*Changes in Status:* H. J. Res. 361 has passed the House, authorizing the Surgeon General of the U. S. Public Health Service to make a survey of existing facilities for the protection of the public health in the care and treatment of leprous persons in the territory of Hawaii. H. R. 4724 has passed the Senate, conferring the benefits of hospitalization and the privileges of the soldiers' homes on certain persons who served in the Quartermaster Corps or under the jurisdiction of the Quartermaster General during the war with Spain, the Philippine insurrection, or the China relief expedition. H. R. 10238 has been favorably reported to the House, with amendment, creating a reimbursable fund for special medical and surgical work among the Indians of the Fort Peck Indian Reservation, Montana. The Senate, April 25, refused to take action on S. Res. 26, changing the name of the Senate Committee on Pensions to the Committee on Veterans' Affairs. Senator Jones, Washington, served notice on the Senate, April 25, that he proposes to bring up for consideration at an early date S. 572, authorizing federal subsidies through which the United States can "cooperate" with the several states in promoting the welfare and hygiene of mothers and children. H. R. 11597, to effect economies in the national government, has been favorably reported to the House (H. Rept. 1126). Among other things, it provides that free hospitalization for non-service disabilities shall not be granted any veteran, other than those veterans who engaged in actual combat, or were under actual fire, or served in the zone of actual hostilities, whose income was $1,500 or over if single, and $3,500 or over if married, for the year preceding the application for benefits, or the year preceding the enactment of the bill, whichever is the later. The bill proposes, also, to amend the Disabled Emergency Officers' Retirement Act to provide that emergency officers shall not be retired for disabilities only *presumptively* of service origin. *Bills Introduced:* H. R. 11640, by Representative Tinkham, Massachusetts, and S. 3907, by Senator Cutting, New Mexico, to amend existing law relating, among other things, to the mailing of information and articles for the prevention of conception. S. 4492, by Senator Smoot, Utah, to provide for the vocational rehabilitation of the blind.

CORRECTIONS

"Raynaud's Disease."—In the article by Drs. Edgar V. Allen and George E. Brown, abstracted in THE JOURNAL, April 23, page 1501, the first requirement for the diagnosis of Raynaud's disease as stated in the conclusions should read: "Gangrene or trophic changes, when present, limited in a large degree to the skin." Of all the patients in their series of 204 cases of Raynaud's disease, 72 per cent had no trophic changes whatever.

Josiah Macy, Jr., Foundation.—Drs. Rowntree, Greene, Ball, Swingle and Pfiffner, whose article on "Treatment of Addison's Disease with the Cortical Hormone of the Suprarenal Gland," was published in THE JOURNAL, Nov. 14, 1931, desire to acknowledge financial help from the Josiah Macy, Jr., Foundation received in this investigation. They say: "At a critical stage of the investigations of Swingle and Pfiffner on the cortical hormone of the adrenal glands, they received generous aid from the Josiah Macy, Jr., Foundation. This made possible the continuation of their work, and enabled us to carry on our studies. We wish with deepest appreciation to acknowledge this aid."

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 9, 1932.

The Development of the Municipal Hospitals

The development of what used to be called "infirmaries," because they were largely homes for the aged and infirm poor, into "municipal hospitals," tending to vie with the great voluntary hospitals, has been described in previous letters. This development has been accelerated in London by the passing in 1930 of the municipal hospitals from the control of local bodies to the central control of the London County Council, with its immense financial resources. The magnitude of this change is shown by the following figures: The council took over 18,000 beds for acute cases, 10,000 for chronic cases, 15,000 for infectious diseases, and 35,000 in mental hospitals. In the past, almost all the teaching and the advances made in medicine, with the exception of infectious and mental diseases, have been the work of the voluntary hospitals. But the equipment of some of the municipal hospitals is now as good as that of the great voluntary hospitals and it can be only a matter of time for their staffs also to advance. As the work is whole time and paid, unlike that of the voluntary hospitals, their personnel has no need to engage in the struggle for private practice—a great advantage, though without the possibility of great prizes. It has already been said that in the future the municipal hospitals may become the leading hospitals in the country and centers of medical education, like the Scandinavian state hospitals. Indeed, the recently created center for postgraduate teaching in London is a municipal hospital, for the adaptation of which to this purpose the government has made a large grant.

The development of municipal hospitals in London is shown in the first report on the hospital and general medical services under the control of the London County Council, which has just been published. Not only are laboratories being built for the individual hospitals but it is proposed to provide five "group laboratories" of the most elaborate type, staffed by full time pathologists. In the *British Medical Journal* and in the *Times*, Sir Ernest Graham Little (dermatologist and member of parliament) criticizes the latter proposal as wasteful, because London is already provided by the great voluntary hospitals with extensively equipped laboratories and, still more important, with a large and highly qualified personnel, which is available for the municipal hospitals. The Voluntary Hospitals Committee, an official body which the London County Council is bound to consult by the act which gave it control of the hospitals, is of opinion that while the necessity for laboratories in large municipal hospitals for acute cases cannot be questioned, instead of establishing group laboratories use should be made of the facilities already available in certain voluntary hospitals, obviously the cheaper and better plan. Sir Ernest holds that, although the council is already offering salaries for its pathologic posts 50 per cent more than those paid at the voluntary hospitals, it is unlikely that its laboratories will achieve a prestige or efficiency comparable to that of the existing laboratories at the voluntary hospitals. As an instance he takes the Institute of Pathology and Research at St. Mary's Hospital, which has carried out pathologic services for municipal hospitals. The institute has won a world-wide reputation under the directorship of Sir Almroth Wright and has no fewer than seven departments: (1) anatomy and embryology, (2) systematic bacteriology, (3) clinical bacteriology, (4) immunology and vaccines, (5) chemical pathology, (6) general and special pathology, (7) experimental physiology and pathology. It is officered by thirteen specialists, many of them of international reputation. Similar institutes are to be found in all the twelve great teaching hospitals of London, but the London County Council is ignoring their existence and embarking on a futile and costly competition.

Can Race Progress Be Rationalized?

At the Universities Congress at Oxford, Sir Arthur Keith gave an address entitled "Can Race Progress Be Rationalized?" He maintained that the racial and national instinct cannot be eradicated from man and that therefore the peace of the world cannot be brought about by a fusion of nations. A feature established in the body or brain of any living thing must serve some useful purpose. What purpose did the national mind serve? The anthropologist said that man's nature had been fashioned not for the production of wealth but for the evolution of new and perhaps better races. After a million years of unconscious effort, mankind awoke to find itself divided into competing races competing for the possession of the world. The cause of all the disharmony of the modern world was the incompatibility of man's inherited nature with modern economic needs. His unconscious self compelled him to be a racialist. The history of Europe gave no encouragement for the belief that nations could ever be welded together by peaceful means. But was it possible for the world to attain such conditions as would enable each nationality to work out its destiny by peaceful progress? The nations today were as selfish and self centered as ever. In spite of what economists said, instability was necessary for progress. In four centuries the map of the world had been transformed and in the process the people of these islands had played the largest part. The spread of the English-speaking peoples represented the soundest and boldest attempts ever made to rationalize the populations of the world. In four centuries, Britain had thrown a league of nations around the world. Race or national spirit was not accessible to reason, but it could be understood by the use of reason. Nowhere are men found rising up and demanding union with their fellows, but everywhere they are resolved to give their blood in the cause of separation. National spirit was engrafted in man's constitution and could not be changed. Sir Arthur Keith would work for peace by seeking to understand human nature and adapting our national outlook to the world's needs.

The Blood Transfusion Service

The development of the Red Cross Blood Transfusion Service has been described in previous letters. At a social meeting of the service, a man who had given forty blood transfusions was presented with a bar to his medal. The first woman, a nurse, to attain twenty transfusions was also presented with a bar to her medal. Sir Arthur Stanley, chairman of the British Red Cross Society, said that he did not want to describe blood donors as heroes, as he was assured by physicians that a little blood letting now and then, as was the habit a century or two ago, had a real tonic effect. But they must recognize, whether it was good for them or not, the social service of these men and women, who volunteered to give their blood not for the sake of their kith and kin but for utter strangers. The value of the blood transfusion service is now recognized by the Medical Research Council and a medical officer has been appointed at St. Bartholomew's Hospital for testing and classifying prospective donors. Its value is also recognized by Eagle Star and British Dominions Insurance Company, which presents to donors a free policy covering all injuries liable to result from blood transfusion. Last year only one call for compensation was made, and that only for loss of a single day's work. The service is also recognized by many official organizations and large commercial houses, among them the Bank of England, the postoffice, the London County Council, and the Port of London Authority, which grant special facilities for members of their staff to serve during business hours. The story of the service is one of steady progress. Up to the present 10,000 calls have been received, and each year the

number increases. This year the number of calls has been 552, while the numbers for the corresponding periods of 1931 and 1930 were 456 and 389.

PARIS

(From Our Regular Correspondent)

March 16, 1932.

Celebration of Fiftieth Anniversary of Discovery of Tubercle Bacillus

The Academy of Medicine commemorated recently the fiftieth anniversary of the discovery of the tubercle bacillus by Robert Koch, in 1882. Professor Calmette delivered an address in which he exalted the memory of the German bacteriologist, who was for so long an opponent of Pasteur. Koch's discovery was preceded by that of Villamin, who demonstrated that tuberculosis is inoculable and contagious, and that consequently it must have as a causative agent a specific micro-organism, which had not yet been found. Calmette, continuing his eulogy of Koch, referred also to his discovery, in 1883, at Alexandria, of the cholera bacillus. Likewise a delegation of the Institut Pasteur had gone to Alexandria but had been unable to discover the micro-organism, although it lost one of its members (Thuillier) as a victim of cholera. He spoke of the discovery by Koch of tuberculin, and of the disastrous results brought about by its use at the start, which made Virchow so indignant. Calmette concluded with an appreciation of the worth of the great German bacteriologist.

The Increase of Nervous Diseases

In an article full of wisdom, Dr. Laroussinie called attention to the increase of nervous diseases and psychoses, at the present time, in all countries. The psychopathic hospitals, public and private, are becoming insufficient to satisfy the demands made on them. The courts have to bring charges against many persons for crimes caused by uncontrolled passion. Laroussinie compares the present-day psychoses with the psychoses of war. He finds the cause for these generalized nervous disorders in the state of mind that characterizes at present the civil population; in seeking after material pleasures; in the undue fondness for the dance; in the chasing after immediate wealth to be observed in young persons; the thirst for excessive profits in speculation, in place of the patient toil of our forefathers. He incriminated the folly of speeding in automobiles, which keeps the brain, owing to the constant sense of danger, in a permanent state of fear, with sleep disturbed and unrefreshing; finally, the increase of alcoholism among the bourgeoisie, where it was formerly almost unknown. Today, women, at their meetings, in place of tea, drink port, and fashionable dinners are preceded by the ingestion of cocktails and followed by alcoholic beverages. The warnings on the subject uttered by physicians to their clientele have little or no effect. The persons in question deny that they are alcoholic addicts, since they never become intoxicated. In reality, it is a question of discreet alcoholism, of chronic intoxication without inebriety, but which is nevertheless dangerous for the nervous system, the liver and the kidneys. Furthermore, the government, which prohibited, during the war, the consumption of absinth, has permitted it to reappear under other names, owing to the influence of certain deputies defending the interests of liquor merchants. There are, for example, the liqueurs with a base of essence of anise, which are just as toxic for the nervous system as absinth, and which are ordered at the "cafés" by many persons, at the close of the day, under the euphemistic title of "aperients." These causes combined, according to Dr. Laroussinie, tend to raise up new generations of persons lacking in balance, impulsive, possessing inadequate self-control, and hence dangerous for society and the state. He added that the same causes had produced the same effects among the Anglo-Saxon nations, but that until now France had been able to escape.

The Treatment of Herpes Zoster with the Antistaphylococcal Vaccine

The origin of herpes zoster and its infectious nature, possibly due to a filtrable virus, are much discussed. The herpetic vesicle is only a symptom and does not appear to have a specific value in itself, since only ordinary micro-organisms are found in the serous fluid. Dr. Camescasse, who recently published his study on this question, distinguishes two phenomena that one might suppose were invariably connected. If the virus is dermotropic, it yields immediately to the action of the antistaphylococcal vaccine; but if it is neurotropic, it creates a neuralgia and rebellious paresthesias, on which the same vaccine has no effect. However, one must not confound neuralgia with the pains provoked by the swelling of the skin and the denudation of the derma. Mr. Craps of Brussels tried the antistaphylococcal vaccine in the treatment of herpes zoster and had good results. This method has enabled him to effect a change in the evolution of all the cases treated and to bring about a rapid disappearance of the pain, usually within one or two days, or, exceptionally, within six days (two cases). Injection of five doses of vaccine was necessary in two cases; nine patients received four doses; the others (in about equal numbers) received only two or three injections. The total duration of the treatment did not exceed nine days. The results are extremely rapid, and, the day following the first injection, one can note a stabilization of the eruptive factors or a frank regression of these. The author injects at the start 0.5 cc. of antistaphylococcal vaccine, which dose he repeats, without augmentation, at intervals of two days. As for the mode of action of the antistaphylococcal vaccine, it is certainly not a specific action, since vaccines prepared with other species of micro-organisms gave the author similar results. On the other hand, the injections of foreign proteins (horseserum, for example) did not bring about any improvement.

The Disease of Young Dogs Transmissible to Man

Mr. Charles Nicolle has announced a rather peculiar observation. The infectious disease which attacks so frequently young dogs, and which is a sort of influenza affecting the lungs and the nerves, due to a filtrable virus, and against which a rather effective serum has been prepared, is transmissible to man but does not cause important morbid phenomena in man. It would seem that man has adapted himself to the virus over a long period of years, whereas the dog has remained susceptible. But man has remained a reservoir of the virus for the dog and constitutes a germ carrier. This, then, is a curious example of an infectious disease that no longer affects the human species, which makes it seem likely that, in the course of time, the same condition may be reached with respect to other infectious agents.

BERLIN

(From Our Regular Correspondent)

March 14, 1932.

Goethe as an Anatomist

The Berlin Medizinische Gesellschaft honored recently the memory of the great scientist Goethe by a special session, at which Privatdozent Dr. Julius Schuster spoke on Goethe as an investigator in the field of anatomy, and Dr. C. Hamburger, ophthalmologist, showed two experiments in demonstration of Goethe's theory of colors. Schuster showed, with the aid of numerous photographs, what Goethe sought to accomplish by his theory of "cranial vertebrae." The main problem was to discover whether the structural anatomy of the higher animals and man is in accordance with a special type or whether the same general structural plan extends through the whole series of mammals. Goethe endeavored to discover this structural plan through his researches on the intermaxillary bone. He sought to learn whether a corresponding bone exists in man, which was found then later through embryologic researches on

fetal life. Goethe was thus one of the first comparative anatomists. His views on morphologic theories may be best expressed as follows: The morphologic tendency of that which one sees before him in the physical world must be anticipated in nature. He at first applied this conception in order to form a notion of the formation of masses of rock, and it appears later again in considering the fundamental forms that lie at the basis of animals and plants. When Goethe speaks of *kraft* (force), he has in mind chiefly the forces that are active within the developing organism, which determine and control its harmonious evolution; that is to say, what scientists today term the inner developmental factors.

Great importance attaches to Goethe's principle of compensation, by virtue of which powerful development of one organ causes in another spot decay or complete absence of organic tissues. In view of his demonstration that marked changes of internal organs find their expression in external signs or symptoms, Goethe may be counted among the first to engage in constitutional research. Goethe was a scientist who possessed intuitive gifts of a high order. It would, however, be an error to try to explain all his ideas as of intuitive origin. What a long series of observations and how much meditation preceded the announcement of his views, is best shown by the drawings found among his posthumous papers. They justify Goethe's statement: "Comparative anatomy reveals to us the depths of nature more than any other form of observation and research."

Hamburger, ophthalmologist, took up the experiment of Goethe that the latter describes in his theory of colors, and in connection with which he speaks of the inscrutable fundamental phenomenon that sources of light rays viewed through milk glass do not appear white but red. Goethe refused to accept (though evidently mistaken) Newton's contention that light consists of the colors of the rainbow; that is to say, is compound (polychromatic). That applies also to the sources of light on the earth. Hamburger performed then a second experiment. He illuminated one half of a large disk of milk glass by an electric incandescent light; that is, by a compound (polychromatic) light, and the other half by a pure sodium light, that is, a simple (monochromatic) light. If Goethe's conception of the phenomenon were correct, both halves of the disk would be red, whereas the half of the disk illuminated by the sodium light is and remains yellow. Consequently, the basis of Goethe's theory of color is untenable.

Economic Distress and the Health of School Children

At a recent joint session of the Berlin Verein für Schulgesundheitspflege and the Berlin Gesellschaft für öffentliche Gesundheitspflege, Privatdozent Dr. Georg Wolff, head of the department of statistics in the Städtisches Hauptgesundheitsamt, made a report of his researches on the influence of the war famine and the economic crisis on school children in Berlin. Research on 3,778 school entrants showed that the classes starting in 1924, 1925 and 1926 were not making the progress in their school work that the classes starting in 1927 and 1928 were making. Wolff ascribes the difference to the fact that the pupils who started in 1924, 1925 and 1926 were born during the years 1917-1919, in which the nutrition was especially inadequate. This is the first time that, by means of anthropometric statistics based on a large number of cases, the after-effects of undernutrition on the body development of the generation born during the war famine years have been demonstrated up to the beginning of the admission to school. On the contrary, the classes that started school between 1929 and 1931 showed in 1,798 examinees no reduction in size and weight; in fact, there was a slight increase.

That during this period characterized by economic distress similar manifestations in the growth of school children to those observed during the famine years of the war were not noted, Wolff explains by recalling that, first, the mass of the population endeavored to adapt itself to the changed conditions by keeping the families small (decline in the birth rate), and, secondly, through consistent application of hygienic and financial aid (aid for the unemployed and employment insurance) the terrible damage has been so far warded off. Wolff called attention to the further fact that these researches are important also in considering the question of adding a ninth school year; that is to say, lengthening the compulsory school attendance by one year, or until the completion of the fifteenth year of life. If it should prove that the children born during the war famine years are qualitatively below par all through their school course, they must not be allowed to enter too soon the labor market, particularly at a time of economic distress; for even health considerations would oppose such a policy.

ITALY

(From Our Regular Correspondent)

April 9, 1932.

Congress on Microbiology

The Italian section of the Società internazionale di microbiologia will hold its fourth congress in November of the current year. The following topics will be discussed: (1) Microbian Dissociations, by Prof. Gianni Petragnani; (2) Local Immunity, Prof. Giuseppe Mariani; (3) The Micro-Organisms of the Terrain and the Fixation of the Atmospheric Nitrogen, Professor De Rossi. Prof. G. B. Allaria will discuss "Postvaccinal Encephalitis." A session of the congress will be devoted to the study of blood groups, at which Prof. Domenico Viola will discuss "Blood Groups in Relation to Physical Constitution."

The Medical Academy of Rome

The Accademia medica di Roma met recently under the chairmanship of Prof. Dalla Vedova. Parisotti spoke on the eye as the index of the general constitution. He concluded that hypermetropia may be regarded as a symptom of constitutional weakness.

Maselli presented a preliminary report on the reaction of patients with arterial hypertension to epinephrine. He said that patients with arterial hypertension present absolute evidence of hypersensitiveness to epinephrine. The hypersensitiveness varies with the type of hypertension. This research on hypersensitiveness to epinephrine in new subjects provoked by injecting into them the blood serum of persons with arterial hypertension is especially interesting. It seems that the blood serum of patients with arterial hypertension and cardiac insufficiency nearly always produces a hypersensitiveness to epinephrine, but this occurs only exceptionally on injecting the blood serum of persons affected with hypertension alone.

Valdoni reported on the histologic examination of forty prostates removed surgically with the diagnosis of hypertrophy. In 50 per cent of the cases there was an epithelioma. In the other cases the hypertrophy rarely affected the whole organ. More often it was a nodular hypertrophy characteristic of adenomyofibromas.

Meldolesi and De Archi discussed polycythemia in heart disease. In a large series of cardiac patients, they found symptomatic polycythemia present in only a small percentage of cases. Polycythemia in heart disease is usually caused by compensation factors. The increase in the red corpuscles was confined to part of the circulatory system and usually to the veins, where one may find the number of red corpuscles from one to two million higher than in the arteries.

Meldolesi spoke on the variation of basal metabolism in patients with Flajani-Basedow disease, during the menstrual period. In sixteen of these patients, with increased metabolism, he found constant changes in basal metabolism during menstruation. Such changes are not associated with simultaneous changes in the circulation or with sensitiveness to epinephrine

and are to be ascribed to the interference between the ovarian function and the thyroid function.

Hygienic Regulations Affecting Labor

Recent legislation designed to protect the health of workmen provides that the officials charged with the enforcement of the act must cooperate with the health authorities to prevent industrial, commercial and agricultural enterprises from causing the diffusion of infectious disease among the workmen. In enterprises that use asphyxiating, toxic or infectious materials, employers must inform the workmen of the danger and provide them the means for prevention. When establishments employ twenty-five or more workmen, they must have first-aid equipment. Establishments in which there is danger of explosion, asphyxia, infection or poisoning must have a first-aid equipment even though the number of workmen is less than twenty-five. If there are more than fifty workmen, the establishments must have a first-aid room in charge of a competent man nurse. In industries in which toxic or infectious substances are employed or produced, the workmen must be inspected before they are permitted to begin work, by a physician, who shall determine whether they possess the necessary qualities to resist the action of the harmful agents to which they will be exposed. Workmen who are accepted must be reexamined from time to time. There are special sanitary specifications with regard to the height, the cubic contents and the floor space of the workshops, the heating arrangements, the development of toxic or inflammable vapors, and dusts. In the establishments in which poisonous, corrosive or infectious substances are handled, or in which the work is such as to cause excessive soiling of the workmen, the employer must provide them facilities for a full bath after the work is done. In some cases, lunchrooms and rest-rooms, or even suitable dormitories furnished with needed accessories, must be provided.

Ear Complications of Scarlet Fever

Dr. Marsigli communicated recently to the Società di cultura medical della Spezia e Lumigiana some statistical material on the ear complications of scarlet fever. The speaker discussed first the etiopathogenesis and the peculiar course of scarlatinal otitis based on observations made, during many months of specialized service, in the isolation department of the Ospedali riuniti di Roma. Supplementary to his personal statistics, he presented the results obtained from an analysis of the clinical histories of 1,347 scarlet fever patients admitted during the quinquennium 1925-1930. Scarlatinal otitis manifests itself usually after the first five days of the disease; namely, after the appearance of the exanthem. It presents the greatest frequency in the second week. One cannot therefore speak of very early ear localizations as being symptomatic of scarlet fever. The conditions associated with the disorder do not take on etiopathogenic importance. It is always a so-called genus epidemicus that constitutes, or produces, the ear complications. The two sexes are attacked with almost equal frequency (about 13 per cent of the scarlet fever cases). The percentage of cases increases between the ages 1 and 4, varies considerably between the ages 4 and 8, and drops rapidly between the ages 9 and 15. The number of cases of bilateral otitis is high. The average ranges between 25 and 55 per cent. Mastoiditis as a complication occurs more often in the second and third week, and the proportion of such cases may amount to 29 per cent of the persons attacked. Many monographs on the subject state that there is a constant relation between the gravity of the anginose phenomena and the type of the ear suppuration, but there is no adequate proof of such a relationship. The period of development, the rapidity of the course, the early spreading to the mastoid cells, the coexistence of localizations in other organs, and the bilateral type of the lesions lead one to suspect that the spreading to the tympanum by way of the circulation is more frequent than is commonly supposed. The speaker called the attention of internists to this dreaded complication of scarlet fever in order that, by acting in accord with the otologic specialist, the percentage of mortality and the number of chronic otitis cases may be reduced.

THE UKRAINE

(From Our Regular Correspondent)

Odessa, March 21, 1932.

The State Nutrition Institutes

Since 1929 several institutes for nutrition were founded in the Union of Socialist Soviet Republics in order to work out a scientific basis for problems of nutrition. Prof. Leo A. Cherkess, the Ukrainian expert in questions of alimentation, was the initiator of this scientific research work. The First Scientific Nutrition Institute of the Ukrainian S. S. R. Commissariat of Public Health was opened in Odessa in 1929, and Professor Cherkess was placed at its head. Later similar establishments were founded in Kharkof, Moscow and Rostov-on-Don, and at present nutrition institutes are being organized in Kiev, Voronezh and Leningrad.

The Odessa institute has the following departments: (1) the experimental department for studying questions of physiology, pathology, biochemistry and pathologic anatomy of nutrition; (2) the sanitary-hygienic department with sections of: (*a*) nutritive chemistry, (*b*) sanitation, and (*c*) legislation; (3) the department of social hygiene, which is studying planned statistics and the organization of communal nutrition. A fourth department, consisting of an experimental clinic with twenty-five beds, receives patients for nutritional treatment of various diseases as well as healthy persons for the experimental verification of new kinds and norms of food, and of the assimilation of different products. The institute for nutrition has a dietetic section for experimental cookery, a section for training specialists, and a section for mass work.

Several times in the year, all-union conferences (consultations) of the nutrition institutes are called. Their purpose is a reciprocal acquaintance with each institute's activity, the development of plans for scientific work, and the distribution of numerous problems that have to be worked out. For instance, the question of rationalizing the nourishment of different professional groups is divided between several institutes in order to receive a detailed study of this problem. Thus, the Moscow institute is studying the nutrition of workers employed in the heavy industries and in the construction of new settlements and mills; the Kharkof institute is studying the same problem in relation to mine workers; the Odessa institute is working on the nutrition of workmen on the fruit and vegetable soviet farms; the Rostov-on-Don institute is studying the nutrition of workmen on the soviet grain farms. This year the Odessa nutrition institute proposes to study the rationalization of foodstuffs and meals, finding out objective indexes for taste-sensations, and the rational nourishment of patients suffering from diabetus mellitus, typhoid, cardiac and arthritic diseases, and anemias of alimentary origin. Successful results have already been obtained. The treatment of endocarditis with a nutritive regimen, plenty of vitamins and a minimum of sodium chloride (all the menus are carefully elaborated by the institute) gives a positive therapeutic effect, although the treatment used generally is without result. The new treatment of typhoid has also given positive results. The institute continues the study of vitamins, viz.: 1. The determination of the vitamin value of products and methods for their conservation (THE JOURNAL, Nov. 15, 1930, p. 1519). The scientific collaborators of the institute obtained canned tomatoes which fully conserved the antiscorbutic vitamin C. 2. The study of the deficiency diseases, particularly pellagra. Professor Cherkess and Dr. L. Korovitzky, who are both working on this problem, agree with the American investigator Joseph Goldberger and his collaborators on the deficiency dis-

eases in the conclusion that pellagra is an avitaminosis. The best factors for preventing pellagra are milk, meat and brewers' yeast. In the Kharkof and Odessa nutrition institutes more than 200 scientific collaborators are studying questions of nutrition, on which these scientists were working even before the institutes were organized.

The Odessa nutrition institute, as well as most of the soviet scientific establishments, conducts its work by dividing it among groups. Thus, every problem is studied by a group of specialists in different fields; for instance, physicians, engineers and economists. This guarantees a profound and close analysis of the problem. The correct organization of nutrition meets with a great obstacle—the lack of specialists—which the nutrition institute tries to overcome. This sector trained eighty sanitary nutrition physicians, sixty nutrition chemists, fifty dietetic nurses and sixteen instructors of cookery for big restaurants. Besides, 180 active workers received a detailed knowledge of the organization of feeding in industry. At present a three months' course for 360 persons is being given to train instructors to organize efficiently public nutrition in collective and soviet farms.

The Odessa Pedologic Institute

The board of instruction of the Odessa Executive Committee organized in 1919 a pedologic institute. Its chief aim was to study defective children and the causes of their deficiencies. At present this institute is a scientific establishment, studying questions of medical pedology and pedagogics under the constant direction of its founder, Prof. Nicolas N. Tarasevitch. The problems studied are (1) causes of defectiveness; (2) methods for medical treatment and education of children; (3) selection of defective children from the schools, their sanitation, education and means for turning them into socially valuable people. For the realization of these aims, the institute has at its disposal medicopedologic and psychophysiologic institutes, a clinical department for defective children, and an auxiliary school with scientific laboratory methods for teaching and bringing up children.

The medicopedologic and psychophysiologic institutes are helping the normal schools to determine the degree of the children's defectiveness. Their staff studies these children by means of clinical and dispensary methods, indicates the kind of treatment, if there is any need in it, and sends the most deficient children to the clinic or to the auxiliary school of the institute. Before entering this school the child is placed for two or three months in an experimental class and then in a class corresponding to the degree of the child's development. In eight classes, 120 children of both sexes, from 6 to 15 years of age, are under instruction. There are special classes for psychopathic children and imbeciles. Besides those groups, children with psychoneuroses, with organic lesions of the central nervous system, with delayed development and with various degrees of oligophrenia are taught. When hyperexcitation or sudden outbreaks of emotion occur, as in cases of breaking the school discipline, the child is sent to a special rest room. There the motives that provoked these occurrences are cleared up. Usually two or three hours of sleep and rest in this room (the child is put to bed, the curtains on the windows are drawn, and the child is examined by a nurse and a physician) suffices to restore the child to a normal condition. The school has special workshops where children make all kinds of things used in the school and the institute. A large space is devoted to gymnastics accompanied by music (the Demoor system).

In the clinical department, with thirty beds, children are studied and treated by means of various clinical methods—physical therapy, electricity, heliotherapy and drugs.

The children take an active part in working out their own regimen in the school and the clinic. When the children get interested in the results, the treatment given to them usually is successful. This is especially apparent in the case of defective psychopathic children. After a two or three months' stay in the clinic, children who were formerly defective become the best and most active members of the school.

Every year the institute publishes more than fifteen scientific research reports on the result of its activity. The works already published include reports on classification of defective children, analysis of individuality, elements of pedology, problems of difficult education, and analysis of the children's creative work. The institute's reports are in part printed abroad, mostly in the *Zeitschrift für Kinderforschung* and *Zeitschrift für Kinderheilkunde*. The institute's work is supported by the board of education. At present it occupies a separate three story building. It is situated near the seashore and has a beautiful garden; thirteen years ago it occupied three small rooms. Its yearly estimate is about 200,000 rubles ($100,000). The institute is popular and its further activity, which consists in returning healthy people to society, will widen.

Public Health in the Soviet Union in 1932

In all the departments of public health in the soviet union there is great activity. One of the chief points of the 1932 plan is to fight for the decrease of traumatism and morbidity among the leading groups of the industrial proletariat and the working class. Its task is to study labor and to work out measures that will secure higher effectiveness of labor and a decrease of morbidity and traumatism. The so-called health points are closely connected with hospitals, dispensaries and clinics. In the socialistic part of the country, districts of collective and soviet farms, their number will increase during this year by 18.5 per cent. In hospitals a new technical equipment will be introduced and physical therapy will be applied in a greater degree. During the year, 724,000 workers will be treated in health resorts. Measures are taken to insure a wide development of local health resorts in the Don basin, Kusnetzk coal fields district and the Ural Mountains. This will increase the possibilities of sanatorium treatment.

The number of tourists, sportsmen and workers passing their holidays in houses of rest will grow. These measures require an augmentation of the medical staff. In 1931 there were 84,000 physicians in the soviet union. Thirty per cent of the posts in hospitals and clinics were occupied by physicians working at the same time in some other medical establishment. This year there will be 125,000 posts in medical establishments and only 87,320 physicians; 5,000 graduates of the medical institutes minus 1,680 (natural decrease). This means that 50 per cent of the posts in medical establishments will have to be occupied by physicians working in two establishments. In order to increase the number of physicians the largest medical establishments will combine with medical high schools, to increase the number of physicians and, in general, the medical personnel.

The growth of public health work in 1932, as compared with 1931, may be seen from the accompanying table.

Public Health Work

	1931	1932
Number of health stations	4,000	5,741
Number of medical establishments	27,752	30,472
Number of beds in medical establishments:		
In towns	89,312	96,552
In country districts	92,618	119,448
On railway and water transport	17,701	21,125
In establishments for the mentally diseased	43,664	46,390
Total	243,295	283,515
Persons staying in houses of rest	800,000	1,100,000
Persons doing gymnastics and athletics	4,000,000	6,000,000

This growth is closely connected with the realization of the five year plan. The further development of medical help forms a practical part of the national economic plan of socialist construction.

Marriages

EMILY CUMMING HAMMOND to Mr. John Fletcher Wilson, both of Lothian, Md., in Beech Island, S. C., April 9.

PAUL REGAN HOWARD, Wahjamega, Mich., to Mrs. Katheryn Onda Gertner of Crown Point, Ind., March 29.

FRANK JAMES SLEMONS, Anthras, Tenn., to Miss Mary Lucy Lewis of La Follette, March 26.

VERNE HAMILTON BLACKWELDER to Miss Lillian Mae Broyhill, both of Lenoir, N. C., April 14.

JOHN WILLIAM RAULSTON, Ancon, C. Z., to Miss Vivian Sylte of Hillsboro, N. D., March 25.

JAMES GRANT THOMPSON to Miss Elizabeth Russell, both of Carthage, Miss., April 4.

WILLIAM SAPHIR, Vienna, Austria, to Miss Carol Lucille Hess of Chicago, April 15.

STUART Z. HAWKES to Miss Laura Jean Farrand, both of Newark, N. J., April 16.

PAUL R. BOREN to Miss Helen Gaghagen, both of St. Louis, April 9.

Deaths

Elijah Barton Pickel ⊕ Medford, Ore.; University of Louisville (Ky.) School of Medicine, 1888; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1894; past president of the Oregon State Medical Society and the state board of health; fellow of the American College of Surgeons; first president of the Jackson County Medical Society; at one time mayor of Medford; formerly city health officer; on the staff of the Sacred Heart Hospital; aged 70; died, in March, of heart disease.

William Mitchell Smart ⊕ Colonel, U. S. Army, retired, New York; Georgetown University School of Medicine, Washington, D. C., 1902; entered the army as an assistant surgeon in 1902; served during the World War; was retired in 1922, with rank of lieutenant colonel, for disability in line of duty; promoted to colonel, retired in 1930; aged 52; died, April 12, in Stamford, Conn., of sepsis following a carbuncle.

Evan O'Neill Kane ⊕ Kane, Pa.; Jefferson Medical College of Philadelphia, 1884; fellow of the American College of Surgeons and member of the Associated Anesthetists of the United States and Canada; aged 70; for many years on the staffs of the Mercer (Pa.) Hospital, Bradford (Pa.) Hospital and the Summit Hospital, Kane, where he died, April 1, of pneumonia.

Owen Chauncey Vermilya, Fremont, Ohio; Eclectic Medical Institute, Cincinnati, 1887; member of the Ohio State Medical Association; past president of the Sandusky County Medical Society; formerly president of the board of education; for many years health officer; on the staff of the Memorial Hospital; aged 67; died, April 3, of pneumonia, following influenza.

Joseph Albert Lassalle, Montreal, Que., Canada; School of Medicine and Surgery of Montreal, 1895; professor of ophthalmology, at his alma mater; member of the American Academy of Ophthalmology and Oto-Laryngology and fellow of the American College of Surgeons; on the staff of the Hotel Dieu Hospital; aged 59; died, January 16.

Louis Adolph Kempff ⊕ Los Angeles; St. Louis University School of Medicine, 1904; member of the Pacific Coast Oto-Ophthalmological Society; served during the World War; on the staff of the Eye and Ear Hospital of Los Angeles; aged 51; died, March 27, in the Cedars of Lebanon Hospital, of linitis plastica and embolism.

Frank Ebenezer Miller ⊕ New York; College of Physicians and Surgeons in the City of New York, 1884; sanitary inspector of the city board of health, 1886-1889; consulting physician to St. Francis Hospital and St. Joseph's Hospital; aged 73; died, April 15, at his country home in Copake, N. Y.

Francis Leo Quigley, Wallace, Idaho; Georgetown University School of Medicine, Washington, D. C., 1904; past president of the Shoshone County Medical Society; served during the World War; on the staff of the Providence Hospital; aged 53; died, February 1.

⊕ Indicates "Fellow" of the American Medical Association.

John Edward Stanton, Chicago; Rush Medical College, Chicago, 1899; member of the Illinois State Medical Society and fellow of the American College of Surgeons; served during the World War; aged 59; on the staff of St. Anne's Hospital, where he died, April 16, of pulmonary hemorrhage and empyema.

John MacFarlane Semple, Spokane, Wash.; Bellevue Hospital Medical College, New York, 1886; member of the American Psychiatric Association; member and past president of the Washington State Medical Association; aged 74; died, April 4, in St. Luke's Hospital, of morphine poisoning.

John P. Kirch, Pittsburgh; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1902; member of the Medical Society of the State of Pennsylvania; aged 51; died, April 10, of a self-inflicted bullet wound.

Adolph B. Mund, Wantagh, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1896; member of the Medical Society of the State of New York; on the staff of the Knapp Memorial Hospital; aged 63; died, March 12, of pyonephrosis.

Edward E. Reininger, Oak Park, Ill.; Chicago Homeopathic Medical College, 1888; for many years on the staff of the Cook County Hospital, Chicago; aged 76; died, April 10, of carcinoma of the left side of the pharynx and rima glottidis.

Clarence Hays Doty, Center Point, Iowa; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903; served during the World War; formerly member of the school board; aged 51; died, March 14.

Carl Leo Mees, Terre Haute, Ind.; Starling Medical College, Columbus, Ohio, 1875; member of the Indiana State Medical Association; president emeritus of the Rose Polytechnic Institute; aged 78; died, April 19, of cerebral hemorrhage.

Herbert A. Morriss, Minneapolis; Marion-Sims College of Medicine, St. Louis, 1898; served during the World War; aged 56; died, March 22, in the Eitel Hospital of chronic myocarditis, bronchitis, neuritis and cirrhosis of the liver.

William Elnathan Clark, Westwood Hills, Calif.; University of Nashville (Tenn.) Medical Department, 1901; quarantine officer for the U. S. Public Health Service; aged 58; died, February 25, of the effects from gas poisoning.

Roger G. Prentiss, Johnson, Vt.; University of Vermont College of Medicine, Burlington, 1894; member of the Vermont State Medical Society; aged 63; died, February 19, while attending a patient in Eden, of chronic endocarditis.

Sherman E. Wright, Portland, Ore.; Northwestern University Medical School, Chicago, 1900; fellow of the American College of Surgeons; aged 64; died, March 5, in St. Vincent's Hospital, of heart disease and arteriosclerosis.

Vinton A. Selby, Sharpsburg, Ohio; Kentucky School of Medicine, Louisville, 1893; member of the West Virginia State Medical Association; formerly health officer of Harrison County, W. Va.; aged 60; died, February 12.

Herman Rudolph Alexander Graeser ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1898; on the staff of the Lenox Hill Hospital; aged 65; died suddenly, April 7, of heart disease.

Sara E. Evans Selover, South River, N. J.; Woman's Medical College of the New York Infirmary for Women and Children, 1893; member of the Medical Society of New Jersey; aged 68; died, April 5, in Long Branch.

George Joseph Walsh, Albuquerque, N. M.; Starling-Ohio Medical College, Columbus, 1912; formerly on the staff of the Atchison, Topeka and Santa Fe Hospital; aged 41; died, March 29, of pulmonary tuberculosis.

Harry Edmund Gowland ⊕ Valparaiso, Ind.; Northwestern University Medical School, Chicago, 1909; served during the World War; on the staff of the Christian Hospital; aged 47; died, April 1, of heart disease.

John William O'Shea, Chicago; Chicago College of Medicine and Surgery, 1915; served during the World War; on the staff of the Hospital of St. Anthony de Padua; aged 48; died, April 3, of encephalitis.

William Leonard Owen ⊕ South Bend, Ind.; Hahnemann Medical College and Hospital, Chicago, 1906; on the staff of the Epworth Hospital; aged 54; died, March 27, of coronary occlusion and hypertension.

Kermit Abjohn Light, Miami, Fla.; University of Pennsylvania School of Medicine, Philadelphia, 1931; aged 28; intern at the Philadelphia General Hospital, where he died, March 25, of pneumonia.

Junious Elmer Crouch, Portland, Ore.; College of Physicians and Surgeons, Keokuk, Iowa, 1897; served during the World War; aged 62; died, March 26, in a local hospital, of perforated duodenal ulcer.

William Henry Petrie, Dolgeville, N. Y.; Albany Medical College, 1900; member of the Medical Society of the State of New York; formerly county coroner; aged 57; died, March 11, of cerebral hemorrhage.

Walter Orlando Henry, Los Angeles; Bellevue Hospital Medical College, New York, 1879; fellow of the American College of Surgeons; aged 74; died, March 21, of carcinoma of the liver and prostate.

Joseph Addison Gibbs ⊕ Suffield, Conn.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1902; aged 58; died, March 31, of carcinoma of the colon.

George Burton Shivery, Woodland, Pa.; Eclectic Medical Institute, Cincinnati, 1886; member of the Medical Society of the State of Pennsylvania; aged 69; died, March 26, of cerebral hemorrhage.

John Haley, Irving, Texas (licensed, Texas, under the Act of 1907); member of the State Medical Association of Texas; mayor of Irving; aged 65; died, February 11, of carcinoma of the jaw.

Warren Clement Sittler, Lehighton, Pa.; Jefferson Medical College of Philadelphia, 1893; member of the Medical Society of the State of Pennsylvania; aged 62; died, February 23.

John Stuart Livingston, Plattsmouth, Neb.; Medical Department of Omaha University, 1898; member of the Nebraska State Medical Association; aged 61; died, February 9.

Peter Lander Brown, Orlando, Fla.; College of Physicians and Surgeons, Keokuk, Iowa, 1864; University of Michigan Medical School, Ann Arbor, 1866; aged 92; died, February 24.

Louis Hyman Freedman, Santa Monica, Calif.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1907; aged 68; died, March 28, of Mikulicz's disease and myocarditis.

Martin Kirsch, Abilene, Kan.; Homeopathic Medical College of Missouri, St. Louis, 1880; aged 83; died, February 27, as the result of injuries received in an automobile accident.

Firman R. Evans, Franklin, Ohio; Miami Medical College, Cincinnati, 1873; aged 80; died, April 5, in the Miami Valley Hospital, Dayton, of coronary occlusion and gastric ulcer.

Jesse Elbert Robbins, Birmingham, Ala.; Southern Medical College, Atlanta, 1886; member of the Medical Association of the State of Alabama; aged 69; died, February 4.

Denis Stephen Green, San Francisco; Jefferson Medical College of Philadelphia, 1885; aged 75; died, January 4, of coronary occlusion, myocarditis and arteriosclerosis.

Benjamin Benton Lewis, Los Angeles; Meharry Medical College, Nashville, Tenn., 1910; aged 39; died, February 18, of acute cardiac insufficiency and pulmonary edema.

John L. Robertson ⊕ Pittsburgh; College of Physicians and Surgeons, Baltimore, 1888; aged 71; died, March 20, in the Presbyterian Hospital, of coronary occlusion.

John F. O. Howell, Detroit; Washington University School of Medicine, St. Louis, 1909; served during the World War; aged 46; died, March 26, of cerebral hemorrhage.

John A. Stevenson, Chicago; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1894; aged 61; died, April 4, of intestinal obstruction and thrombosis.

Charles Hedges James ⊕ Broadus, Mont.; Columbian University Medical Department, Washington, D. C., 1897; aged 60; died, April 13, of coronary thrombosis.

Malcolm L. Currie, Alston, Ga.; College of Physicians and Surgeons, Baltimore, 1888; member of the Medical Association of Georgia; aged 79; died, February 12.

Grant Stafford Monical, Phoenix, Ariz.; Medical College of Ohio, Cincinnati, 1883; veteran of the Spanish-American War; aged 69; died, March 25, of heart block.

Henry K. Emerson ⊕ Los Angeles; Cleveland College of Physicians and Surgeons, Medical Department Ohio Wesleyan University, 1897; aged 62; died in January.

William L. Thompson, Mooresville, Ind.; Medical College of Indiana, Indianapolis, 1889; for many years member of the school board; aged 65; died, February 13.

Arno Meyer ⊕ Chicago; College of Medicine and Surgery (Physio-Medical), Chicago, 1910; formerly a druggist; aged 53; died, April 2, of valvular heart disease.

Richard Lord ⊕ Cedar Rapids, Iowa; Rush Medical College, Chicago, 1893; on the staff of St. Luke's Hospital; aged 63; died, April 4, of heart disease.

Urban Henry Reidt ⊕ Jeannette, Pa.; Georgetown University School of Medicine, Washington, D. C., 1906; aged 48; died, March 22, of pneumonia.

Eugene E. Bragg, Atlanta, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1906; aged 54; died, March 31, of atrophic cirrhosis of the liver.

Winfield Scott Walker, Los Angeles; Rush Medical College, Chicago, 1886; aged 70; died, February 11, of chronic myocarditis and angina pectoris.

John A. Logan Harris, Toledo, Ohio; Starling Medical College, Columbus, 1896; aged 66; died, March 30, of coronary thrombosis and arteriosclerosis.

Ralph Montgomery Markel, Carlisle, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1912; aged 46; died, March 15, of pneumonia.

William T. Eastes, Gaston, Ind.; Butler University Medical Department, Indianapolis, 1881; aged 87; died, in April, of chronic nephritis and senility.

John Marshall Hills, New York; Bellevue Hospital Medical College, New York, 1874; aged 87; died, January 7, of phlebitis, cystitis and sepsis.

Eleazor Joseph Cowart ⊕ Lyman, Miss.; Louisville (Ky.) Medical College, 1904; aged 56; died, March 14, in a sanatorium at Fletcher, N. C.

Harry O. Wiseman, Chicago; Chicago College of Medicine and Surgery, 1917; aged 37; died, April 1, of chronic myocarditis and nephritis.

James Herbert Stevens, Boston; New York Homeopathic Medical College and Hospital, 1893; aged 60; died, March 24, of coronary thrombosis.

Carl Fritz Siefert ⊕ Brooklyn; University of the City of New York Medical Department, 1892; aged 67; died, March 27, of heart disease.

Buell Sumner Rogers, Chicago; Rush Medical College, Chicago, 1892; aged 68; died, April 13, of chronic myocarditis and arteriosclerosis.

Thomas B. Nichols, Bardstown, Ky.; University of Louisville School of Medicine, 1884; aged 72; died, March 11, of angina pectoris.

John J. Sharp, Silver Creek, N. Y.; Medical Department of the University of the City of New York, 1883; aged 80; died, January 8.

Calvin L. Johnstonbaugh, Bethlehem, Pa.; Eclectic Medical Institute, Cincinnati, 1887; aged 67; died, March 31, of pneumonia.

Charles Clarence Dinnison, Castle Point, N. Y.; Jefferson Medical College of Philadelphia, 1927; aged 33; died, March 6.

Ogden F. Gile, Dakota, Minn. (licensed, Minnesota, 1884); aged 81; died, March 21, of arteriosclerosis and cerebral hemorrhage.

William Appleton, Boston; Harvard University Medical School, Boston, 1877; aged 84; died, March 21, of pneumonia.

Joshua Clayton, Philadelphia; Jefferson Medical College of Philadelphia, 1886; aged 75; died, March 20, of arthritis.

Walter W. Maires, Tuckerton, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1893; died, January 27.

Harrison Tongue, Elkridge, Md.; University of Maryland School of Medicine, Baltimore, 1871; aged 84; died, February 3.

Lambert Ott ⊕ Philadelphia; Jefferson Medical College of Philadelphia, 1878; aged 75; died, March 26, of heart disease.

John J. Koger, Rogersville, Tenn.; Physio-Medical College of Indiana, Indianapolis, 1882; aged 72; died, January 27.

Leal Luther Perry ⊕ Bainbridge, N. Y.; Albany Medical College, 1925; aged 37; died, April 12, of scarlet fever.

James T. Stokes, Medina, N. Y.; University of Buffalo School of Medicine, 1879; aged 81; died, January 15.

Seth Thomas Morrill, Martinsville, Ill.; Rush Medical College, Chicago, 1887; aged 72; died, Dec. 30, 1931.

Edward S. Hart, Bedford, Va.; Cleveland Medical College, 1873; aged 83; died, February 29.

Asa L. Taylor, Middleville, Mich. (licensed, Michigan, 1900); aged 71; died, January 15.

William A. Oyler, Cicero, Ind. (licensed, Indiana, 1904); aged 82; died, February 15.

Bureau of Investigation

C. R. EMEDY—IMPOSTOR

A Swindler Who Picks for His Victims Physicians and Members of Sigma Chi Fraternity

On the fourth of January last, Dr. Walter D. Blankenship of Lancaster, Pa., wrote to the American Medical Association, asking if the Association employed a physician by the name of "C. Richard Emedy," who, according to the doctor, was claiming to be so employed and to be a graduate of Johns Hopkins Medical School of 1930. Dr. Blankenship stated that Emedy said that he was being sent from city to city by the American Medical Association doing "demonstration work." Doctor Blankenship was told, of course, that no such person was employed by the Association and that all subscription agents of the American Medical Association are provided with credentials that they should be able to produce on request. Dr. Blankenship then replied that the Emedy person had been victimizing alumni of Johns Hopkins School of Medicine and that the man was evidently a past master at the art of swindling.

About the same time, Mr. H. C. Burgan, Business Manager of Johns Hopkins School of Medicine wrote to the Director of the Bureau of Investigation, stating that Dr. Blankenship had reported to him his experience with C. Richard Emedy. Mr. Burgan sent a photograph of Emedy—who goes under various aliases—which had been taken in September, 1931, by the Criminal Identification Bureau of the Montreal Police Department, and also furnished further information regarding the activities of Emedy. He also wrote that Mr. Cleveland, Editor of the *Magazine of Sigma Chi*, had published at various times articles regarding the criminal activities of Clarence Richard Emedy. From the material furnished both by Mr. Burgan and by Mr. Cleveland, the following facts emerge:

Here are some of the free photographs, taken at state expense, of C. R. Emedy, as he appeared in Wichita Falls, Texas, in 1928, Montreal in 1931, and Pittsburgh in January, 1932.

Clarence Richard Emedy, who sometimes spells his name Emidy, is either the name or one of the numerous aliases of a young man who is alleged to have been born in December, 1907, is 5 feet 6¼ inches in height, weighs about 135 pounds, of slim build, dark hair, brown eyes, and dark complexion. He has a rather high-pitched voice, sometimes affects a southern drawl and idioms, but is said to be equally clever with the use of New England idioms and accent; is usually well dressed. Some of the aliases used by Emedy are "Don Miller," "T. Baker," "Spratt," "Douglas Noble," "Winken Wonder," "R. D. Whitman," "George Hodges," etc., etc.

The *Magazine of Sigma Chi* in its May-June, 1928, issue, carried an article on Emedy, who at that time was prisoner No. 58286 at the Texas State Penitentiary. From this article, we learn that Emedy, equipped with a stolen Sigma Chi Directory, a Sigma Chi badge, and a Phi Chi medical fraternity pin bearing the inscription, "J. A. McL. Sigma Theta 26 6256," has gone about the country fleecing Sigma Chi men from Connecticut to California.

Emedy's favorite hard-luck story won him the name of the "Spare Tire Artist." He usually represented himself as a medical student—generally from Johns Hopkins or Northwestern. He claimed membership in the Sigma Chi chapters at Cornell, Northwestern, Ohio Wesleyan, Kansas, Michigan, Virginia, and probably others. He traveled about the country in a Wills Sainte Claire car, the spare tire of which, unfortunately, had a habit of being stolen! Emedy's favorite prey were individuals whom he described as "his father's Sigma Chi classmate"; he specialized in alumni between the classes of 1895 and 1905. With the aid of the Sigma Chi Directory, he memorized the names, addresses and occupations of the class of the intended victim, as well as the two classes immediately before and after. The "father" that he adopted for his scheme was always a man who lived at a distant point from his scene of operations. Emedy's memory on all points of personal data and fraternity happenings was incredibly good and he seemed to have little difficulty in collecting from $10 to $25 from at least two hundred Sigma Chis on the story that his spare tire had been stolen and he was a little short of money.

In 1927 Emedy made the mistake of trying to work a Sigma Chi man at Wichita Falls, Texas. As a result, he was arrested by the Police Department of that city December 10 of that year, charged with forgery, four physicians of that city having been victims. Emedy was tried January 9, 1928, on three cases of forgery, sentenced to two years' imprisonment in each case, the sentences, unfortunately, running concurrently. The judge who sentenced Emedy later learned of the man's previous record and he wrote to the editor of the *Magazine of Sigma Chi* that had he known all the facts at the time of sentence, he would have made the three sentences of two years each cumulative instead of concurrent. In his letter the judge said that Emedy at the time of his sentence seemed to be very penitent, studying the Bible, praying over his sins, thereby securing the sympathy of a prominent local preacher who interceded in his behalf, asking the judge to be as lenient with Emedy as the law would allow.

Emedy served a year and a half in the Texas State Penitentiary and was released on June 4, 1929. In January, 1930, the Police Department of Miami, Fla., sent out a bulletin showing Emedy's coast-to-coast itinerary from September, 1929, to January, 1930. During this period this swindler was using as aliases "Theodore Baker," "Donald O. Collins," "Frank W. Barrows," and "Franklin Barrows." The *Magazine of Sigma Chi* reported, too, that since Emedy's confinement in the Texas State Penitentiary, he was doffing his hat when the Alma Mater hymns of Dartmouth, Emory and Michigan were sung!

In December, 1930, Emedy was arrested in Tulsa, Okla., according to a report, having previously given a worthless check to a local man. The Tulsa authorities were, unfortunately, unable to prosecute because individuals who had been swindled were unwilling, because of the comparatively small sums involved, to spend any additional money in having Emedy put behind the bars. The police, therefore, did the only thing possible, placed a state vagrancy charge against Emedy, at which time Emedy is reported to have turned over to his attorney all of his personal belongings, and the attorney made bond for him amounting to $250. When the case was called, Emedy failed to show up. The case was continued several times and finally the judge suspended the sentence until Emedy could again be apprehended.

In April, 1931, Emedy was working his scheme in Newark, N. J., and posing as the son of a reputable physician in Wichita, Kansas. He had also tried to put over his stuff in Washington, D. C.

On September 11, 1931, Emedy was arrested by the police authorities of Montreal. It appears that Emedy was eating lunch in a restaurant when two Montreal citizens, brothers and both Sigma Chis, came in and sat down opposite. Noticing that Emedy was wearing the pin of their fraternity, the brothers introduced themselves as Sigma Chis, and shook hands with Emedy, who gave them the Sigma Chi grip. Emedy told these men that he was a member of Psi Chapter at Virginia, that he

was a graduate of Johns Hopkins, and that his name was "Harry Miller." He also said that he was attached to the Presbyterian Hospital in New York City and expressed a desire to learn something about McGill and Gamma Lambda. While Emedy disclosed a great deal of knowledge about the Sigma Chi fraternity as a whole, he was shaky on certain points and evidently ignorant of the fact that the ritual had been changed. This made the two brothers suspicious of him and on return to the house, they looked up the articles in the *Magazine of Sigma Chi* on Emedy and identified "Harry Miller" as Clarence R. Emedy. They had Emedy arrested. The impostor, after attempting to bluff it through that he was "Dr. Harry Miller" of New York, finally admitted his identity. While he was detained by the police for a short time, he got out under habeas corpus proceedings.

From Montreal, Emedy went to Pittsburgh and on January 9, 1932, was arrested in that city under the name of "Carleton Richard Emidy" on the charge of passing bad checks. At the trial he pleaded guilty and was sentenced to two years in the Allegheny County Workhouse, entering that institution on January 20.

For a year or so, then, the public will not be swindled by this impostor. As the man's record indicates that he is inherently crooked, it is probable that as soon as he is released from the workhouse in Pennsylvania, he will resume his old trade.

Correspondence

COLON IRRIGATIONS

To the Editor:—Have irrigations any place in the modern treatment of diseases of the colon? Is the procedure based on any sound concept of the physiology and pathology of the colon? Dr. Bastedo in THE JOURNAL, February 27, page 734, answers the questions in the affirmative, with the qualification that, as they are usually performed, colon irrigations may cause untoward reactions and produce discomfort and injury to the colon and rectum. He finally concludes that the slow, careful introduction of from 6 to 10 gallons of water is a valuable therapeutic measure in the treatment of mucous colitis, intestinal putrefactive toxemia, and in cases in which a focus of infection is believed to reside in the bowel, and that as a result large fragments of tenacious dark-colored mucus, bacteria, and foul smelling putrefactive material are washed out. He refers to the fact that the "internal bath" has been overdone by the commercialized irrigation specialist.

I have had personal experience with the method and have ceased to employ it for the following reasons:

1. The more one irrigates, the more mucus one gets. In other words, irrigations incite the secretion of mucus. If continued long enough, the "foul smelling material" can be secured in persons with normal colons. The material is, in fact, the normal contents of the ileum when subjected to such treatment.

2. The therapeutic results are of doubtful value, and no lasting benefit is secured. Moreover, direct inspection of the mucosa of the rectum and lower colon by sigmoidoscopy has convinced me that injury unquestionably results from its persistent use.

3. Reliance on irrigations deprives the patient of those measures which are so essential in the restoration of colonic function.

The restoration of colonic function is based on a right concept of the principles of colonic physiology which might well be briefly recapitulated here:

The studies of Hurst (Constipation and Allied Intestinal Disorders, 1919, p. 295), Holzknecht (*München. med. Wchnschr.* **56**:2041, 1909), Barclay (*Arch. Roentg. Ray* **16**:422, 1912), Case (*Tr. Radiol. Sect. Internat. M. Cong.*, London, 1913, part II, p. 13) and others disclose that the colon is emptied by a series of mass movements. When the fecal column, which has been held up at the rectopelvic juncture, enters the rectum, the desire to defecate is provoked. As Hurst (Goulstonian Lectures in the Sensibility of the Alimentary Canal, Oxford, 1910) has shown, this desire is not due to stimulation of the sensory nerves, as they are absent in the rectum, except in the mucosa of the anal canal. The reflex is established by means of the "muscle sense" of the distended rectum. My clinical observation is that the urge to defecate does not occur until the fecal mass engages the anal canal. The first mass movement empties the rectum and part of the pelvic colon. Secondary mass movements occur and continue until, under normal conditions, the entire large intestine below the splenic flexure is completely emptied. Hurst has demonstrated that about thirty-three hours' time is required for a meal to be entirely evacuated from the gastro-intestinal tract. Food taken nine hours before the act of defecation should reach the splenic flexure and part of it appear in the feces.

Carlson (*Tr. Am. Gastro-Enterol. A.*, 1911, p. 217) and Alvarez (THE JOURNAL, July 31, 1915, p. 388) add emphasis to the rôle that motor disturbances play in the production of gastro-intestinal symptomatology. Cannon (*Arch. Int. Med.* **8**:421 [Oct.] 1911) as well as Meltzer (*Arch. Int. Med.* **15**:955 [June] 1915) has shown that the gastro-intestinal movements occur in a definite, orderly fashion. The work of Alvarez (*Tr. Am. Gastro-Enterol. A.*, 1919, p. 46) reveals a gradient of irritability from the cardia to the pylorus. He suggests that the entire gastro-intestinal tube may have been originally so constructed that the rhythmicity of any one segment varied inversely as the distance from the pharynx. We are therefore justified in visualizing the gastro-intestinal tract as a beautiful mechanism whose motor apparatus functions in a rhythmic, orderly fashion, concomitant with appropriate, specific chemical changes.

The character of the feces is important. Burnett (*Am. J. M. Sc.* **166**:415 [Sept.] 1923) first accurately described the normal fecal mass. It is firm in consistency and is made up of small masses welded together in a columnar form. He terms it the "unit stool." I have confirmed Burnett's contention that many grave states of malnutrition may be produced by "incomplete digestion" due to colonic hypermotility. I pointed out years ago that our worst cases of intestinal toxemia are seen in the chronic diarrheas. Unfortunately the laity and, I regret to say, many physicians are still obsessed with the notion that the human colon is a sewer that should be kept flushed out.

Carlson says, "Auerbach's plexus is the brain of the intestine." It is a brain much older and better organized than that of man, who lightly attempts to interfere with a biologic function established in all forms of life throughout the ages. Abdominal or colonic massage is absurd and dangerous. I have records of a number of cases in which perforation peritonitis has followed vigorous massage of the abdomen. A weak-walled ulcer, appendix or gallbladder may be ruptured. Who has the presumption to state at what time the intestinal contents should move forward? It is one's duty to attempt restoration of normal rhythm instead of using methods that tend toward further disorganization.

When one opens the lower colon of any healthy vertebrate, including man, one will find formed desiccated fecal matter. It is obvious that restoration of function cannot consist in changing the contents from the dry to the liquid state by the habitual use of drugs, enemas and irrigations.

Schmidt and Strasburger (Die Feces des Menschen, Berlin, 1905, p. 257) found that the bacterial content of dried feces is about 33 per cent. MacLeod (Physiology and Biochemistry in Modern Medicine, 1930, p. 744) estimated 25 per cent of bacteria to dried feces. It is obvious that irrigations cannot change the bacterial flora of the colon. It is not possible to wash the membrane clean, because fecal contents must continue to enter the colon from the ileum.

Mucous colitis has been set up as an obscure and often incurable disease. It is neither an inflammatory process nor a

neurosis but is a spasm of the colon in which long strings of mucus are passed. The colon is an instrument that is played on by many and varied outside influences. I may mention the psychoses, gallstones, kidney stones, ulcer of the stomach and duodenum, pelvic diseases and allergy. I have many roentgenograms showing colon spasm in the conditions mentioned. Purgative drugs, enemas and irrigations all produce further irritation and more tendency to spasm. The underlying cause should be eradicated if possible. If the condition is not to be diagnosticated, treatment should consist of retention enemas of liquid petrolatum, a smooth diet, and mild sedatives, with avoidance of all colonic manipulation.

HORACE W. SOPER, M.D., St. Louis.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

OTOSCLEROSIS AND POSSIBLE INDICATIONS FOR THERAPEUTIC ABORTION

To the Editor:—I have an obstetric problem which I am not familiar with and which is not discussed in the standard textbooks. A primipara, aged 36, between three and four months pregnant (irregular menses), comes from a family in which all the members, including her father and mother, are deaf. She herself is almost completely deaf and was recently told by a competent otologist that she would soon be completely deaf. Her deafness began at the age of 15 and has become progressively worse. Her husband's hearing is normal and there is no history of deafness in his family. The patient states emphatically that she would prefer to die rather than give birth to a deaf baby. She also contends that, if the baby should be normal and she was unable to hear it cry, she would not be competent to raise it. She feels that she would be directly responsible for anything that befell it because of her inability to hear it cry or call her. Her financial position prevents the hiring of a servant or nurse. She is nervous and high strung. The course of her pregnancy so far has been about normal except for her mental attitude. She had a little more than the usual nausea and vomiting, but this was controlled by hospitalization and is subsiding. Physical examination gives normal results except for a moderately contracted pelvis, which is not small enough for an elective section. The blood pressure and urine are normal. Chemical examination of the blood and the blood count are normal except for moderate secondary anemia. The Wassermann reaction is negative. What are the probabilities of the baby being deaf? Do you consider a therapeutic abortion justified? Please omit name.

M.D., New York.

ANSWER.—The case cited is probably one of otosclerosis, which appears to be an hereditary disease in about 50 per cent of the cases and may be traced back several generations. Women seem to be affected with this disease more than men. It usually manifests itself in early life and is a progressive condition. It is probably present at birth in a latent if not active state. It is thought that the osteosclerotic change in the capsule of the labyrinth must begin five or ten years before the first symptoms of tinnitus and deafness appear. It usually develops between the eighteenth and thirtieth year and is commonly progressive even without pregnancies. Pregnancy, as well as many other conditions, seems to aggravate the condition.

There appears to be no definite cure for it. Some believe that, since it is probably an ossification anomaly occuring during the period of postembryonic growth of the labyrinthine capsule, the expectant mother and the offspring should receive a proper diet with calcium and vitamins together with cod liver oil, fresh vegetables, milk and sunshine. This would tend to promote normal completion of the ossification of the labyrinthine capsule. One has to view this problem from the standpoint of the mother and also of the fetus. The mother is apparently destined to become totally deaf irrespective of the pregnancy. This phase of the case can then be largely disregarded.

So far as her feeling regarding the giving birth to a deaf child is concerned, it seems rather late to consider this after she has married and become pregnant. Her inability to hear the baby cry would hardly seem to be a valid argument, as her husband would doubtless be home nights and could hear the baby when it cried and she could watch it frequently enough during the day to attend to the baby's needs. It would seem that the baby would not necessarily suffer from lack of necessary attention from the parents. Here again some of these difficulties might have been considered prior to marriage and conception.

One cannot tell whether or not the baby will be deaf. The mother's ancestry is not good according to the history, but that of the father seems to be satisfactory, at least from the point of view of deafness. At the worst there appears to be no greater than 50 per cent chance that the child would be deaf. The condition seems to be much more frequent in females than in males and there is at least an even chance that the offspring would be a boy, which would favor a normal development of the hearing.

Many deaf people have proved to be valuable citizens and it would hardly be justified to destroy the fetal life because of the possibility that the infant might later become deaf. It would seem that it would be just as well or better for the woman to go through with her pregnancy. Subsequently she or her husband should be sterilized if they are not able or willing to avoid future pregnancies.

TUBERCULOSIS AFTER INFLUENZA

To the Editor:—An unmarried woman, aged 23, developed influenza about three years ago. The illness ran an ordinary course and the condition of the patient improved, but she continued to cough for a long while and also her fever did not subside completely. On repeated examinations the right apex showed signs of a pulmonary lesion, but a number of roentgenograms proved to be negative. Repeated examinations of the sputum are negative. There are no other clinical signs of tuberculosis, except that during all three years the patient's temperature has ranged anywhere between normal and a little over 100. The elevation of temperature may be at various hours of the day, morning, afternoon or evening. The patient's cough has subsided a good deal, but the physical signs of the right apex still indicate a lesion of the apex. Several of the best roentgenologists of Philadelphia claim that her lungs are normal. Undulant fever was suspected but ruled out by laboratory tests. The blood on chemical examinations as well as Wassermann tests is normal. She also suffers a great deal from vomiting, particularly when the bowels are constipated. Menstruation is accompanied by severe pain and often by a marked elevation of temperature, so much so that I deemed it advisable to subject her to dilation and curettage, and a reputable gynecologist advised a laparotomy; but all to no avail. The sigmoid flexure was found to be unduly curved, which may account for the constipation. The alimentary tract was also studied roentgenologically, with a negative result. During her three years of illness, the patient has lost between 6 and 8 pounds. Her present weight is 89 pounds (40 Kg.) and her height is 4 feet 11 inches (150 cm.). Can you outline the diagnosis and treatment in this case? Kindly omit name.

M.D., Pennsylvania.

ANSWER.—An important consideration, even after this length of time, is to make certain that accessory nasal sinus disease is not present. The dripping of mucopus down the nasopharynx into the lower respiratory tract frequently creates an infection of the pulmonary hilus with an associated peribronchitis. In this patient the results of the physical examination, indicating active disease at the right apex, and toxemia manifested by a rise in temperature, make pulmonary tuberculosis the most plausible diagnosis. Occasionally an exudative lesion may be found at the apex, capping it, yet overlooked by those with insufficient roentgenologic experience.

The elevation of temperature at menstruation is also seen in a large proportion of persons with active pulmonary tuberculosis. The rise of temperature in tuberculosis does not always occur during the afternoon interval but may be found in some individuals in the morning, afternoon or evening.

The treatment in this instance, with a temperature elevation to or above 100, should be absolute rest in bed in a well ventilated room, with an abundance of sunshine available. A mixed vitamin diet, containing a balance of protein, carbohydrates and fat, with cod liver oil and calcium compounds should be prescribed. Medicinal and other therapy should be determined by special indications that arise.

EXCESS GROWTH IN CHILD

To the Editor:—My daughter will be 12 years old in June and is 5 feet 3 inches (160 cm.) in height. She grew 4 inches from April to September of last year and 1 inch from September to February of this year. Her weight is 103 pounds (46.7 Kg.). Mentally and physically she shows no abnormalities except this excessive growth. The menses have not started as yet, although the breasts have of late shown some development. My wife's height is 5 feet 5½ inches (165 cm.) and mine is 5 feet 6½ inches (167.7 cm). We also have a boy, who will be 15 years old in June, whose height is 5 feet 6 inches (167.6 cm.). Do you believe that the excessive growth may continue? Is there anything in glandular therapy to forestall it? Please omit name.

M.D., Illinois.

ANSWER.—The girl weighs 103 pounds, and her height is 63 inches. A girl of 12 years, according to the table of Wood and Baldwin, who is 63 inches in height should weigh 110 pounds (50 Kg.). It is apparent that for her height she is somewhat below the average weight. She is in a period of rapid growth.

This child is in the prepuberty period, which is normally characterized by a marked increase in height and weight.

It is well known that before puberty there is an interval of one or two years of slow growth, a rest period, which is thought to be preparatory to the more active growth during the pubescence. The greatest development in the height of girls occurs at the twelfth year of life, while a similar increase in boys does not occur until the fourteenth or fifteenth year. It is apparent that the accelerated growth appears earlier in girls than in boys, but at the fifteenth year the girl's development in weight and height slows down materially. It must be remembered that fluctuations in the course of growth of both sexes are determined by race, constitution, nutrition and exercise.

During the war period it was observed in central Europe that malnutrition retarded the growth in height and weight 25 per cent or more during the pubescent period. The period of puberty is characterized by marked and rapid physical changes, though the individual constitution causes the most important variations in growth.

The form and size of the individual is determined by hereditary factors as well as endocrine, nutritional and racial influences. The endocrine factors have sometimes been overstressed and the other influences minimized. It has been suggested that the endocrine glands exercise a regulative function on the processes of growth.

During puberty there is a hyperfunction of the thyroid and the anterior lobe of the pituitary, which provide the necessary hormones for this period of accelerated growth. The basal metabolism is increased during this time.

It is probable that this child is in her prepuberty period and shows the normal growth characteristics and physiologic variations of this time of life. In all probability, when this process has run its normal course her rate of growth will become readjusted and follow the normal type, which has been stated. There is no indication to employ glandular therapy. One would remain in doubt as to which particular kind of endocrine to choose and whether such treatment might not produce imbalance of the endocrine system.

PITUITARY HEADACHE

To the Editor:—I have been treating a woman who complains of periodic menstrual headaches. She is white, 38, and single. She has been affected by this headache for about twelve years. It comes on about two days before menstruation, is excruciating in character and lasts two or three days. Physical examination gives negative results. Roentgen examination of the sella turcica shows the anterior and posterior processes almost touching and the sella quite shallow. In view of the periodicity of this headache, after trying pituitary extract, thyroid and theelin, I decided to produce premature cessation of the menses by therapeutic irradiation of the ovaries. The patient has not menstruated for eight months, but her headaches come on about every twenty-eight days just as before. Kindly omit name.

M.D., Virginia.

ANSWER.—Although these headaches occurred at the menstrual periods, an artificial menopause would not have been expected to relieve them but rather to bring on other symptoms. The appearance of the sella suggests that the headaches may be so-called pituitary headaches. A therapeutic test may be made by giving intramuscularly a solution of anterior pituitary extract every five days for a couple of months. If this gives partial relief it would be well to try injections every other day for four doses before the expected attack of headache. If this treatment fails, it is safe to assume that the case is one of ordinary migraine.

PRESCRIBING COPPER COMPOUNDS IN HEMATINIC CAPSULE

To the Editor:—I wish to know just in what form copper can be included in the usual hematinic capsule prescribed in secondary anemia, containing iron and arsenic. Also state the dosage of the copper salt or compound you recommend for inclusion in such a capsule. I am especially interested in the less expensive copper compounds, such as local city druggists would carry in stock. Please omit name.

M.D., Pennsylvania.

ANSWER.—There is no difficulty in incorporating cupric sulphate, an official drug which is kept in every pharmacy, alongside arsenic trioxide in the ordinary Blaud's mass; a dose of 0.01 Gm. would be ample. The following prescription would yield a satisfactory product:

℞ Arsenic trioxide ..... 0.06 Gm.
Cupric sulphate ..... 0.30 Gm.
Mass of ferrous carbonate..... 10.00 Gm.
Mix and divide into 30 capsules.
Label: One three times a day after meals.

It should be understood that the therapeutic usefulness of the addition of copper compounds to iron preparations is still in the experimental stage.

USE OF ANTITYPHOID VACCINE

To the Editor:—What is the consensus relative to the advisability of administering typhoid vaccine to contacts during the potential incubation period of the disease? As a concrete case, if a case of typhoid occurs in a family and is diagnosed positively in the first week, should all the nonimmune members of the family be given typhoid vaccine at once? Does the immunity resulting from the vaccine develop soon enough to be of value provided infection has already taken place? Is it likely that the contact's natural immunity against typhoid is temporarily lowered by the vaccine and might thus increase his susceptibility for a short time? Assuming that there is a quantitative factor in the acquisition of a disease, might the vaccine act to reinforce the efforts of the living infection accidentally acquired? Much difference of opinion exists locally regarding the points raised, and they seem to me to be important.

H. L. ARNOLD, M.D., Honolulu, Hawaii.

ANSWER.—Assuming that the members of the family continue to be exposed to typhoid infection, no time should be lost in immunizing them. The immunity develops gradually and perhaps hardly rapidly enough to exercise any definitely recognizable influence on already existing infection. There is no convincing evidence that the vaccine actually increases susceptibility even for a short time. It is possible that the vaccine would stimulate the development of active immunity in an infected person at the same time as it might exercise favorable nonspecific effects. All things considered, there does not seem to be any good reason why so-called contacts should not be given typhoid vaccine during a possible incubation period.

MEASURING WORK OF THE HEART

To the Editor:—In a recent volume on heart disease, Paul Dudley White often refers to the fact that the heart does more work in a recumbent position than when erect. I should be obliged if you would refer me to some physiology or some book describing experiments by which this has been proved, and also I should like to know whether this is universally accepted by physiologists at the present time. Please omit name.

M.D.

ANSWER.—In a fairly recent article, Grollman (The Effect of Variation in Posture on the Output of the Human Heart, *Am. J. Physiol.* **86**:285 [Sept.] 1928), after reviewing the literature on the subject, gives a summary on the basis of his own investigations in which he says: "The circulatory minute volumes of a series of normal men and women were determined in the recumbent, sitting and erect postures. Contrary to the findings of previous investigators, the results show that the circulatory minute volume is maintained constant despite variation in posture. The effect of posture on the respiratory mechanism is pointed out, and it is shown that homogeneous mixture in a lung bag system is less easily obtained in the recumbent than in the standing posture. Certain physiological implications involved in the conception of a constancy in the circulatory minute volume with varying posture is discussed." In previous and succeeding issues of the *American Journal of Physiology* the same author discusses various aspects of cardiac output in different physiologic states (e. g., after fluid intake and during menstruation).

DETECTION OF TRANSMITTERS OF HEMOPHILIA

To the Editor:—In a recent issue of *Time*, in an article having to do with hemophilia in Spanish royalty, the statement was made that King Alfonso XIII had his daughters examined to see whether they were carriers of the disease. The article states that a London physician examined them and confirmed, what every one has assumed, that the girls, like their mother, are carriers of hemophilia. Will you please tell me what the method is that was used to confirm the king's suspicions? Is there actually a way of telling whether or not a person is a carrier of hemophilia?

LAURENCE H. SNYDER, Columbus, Ohio.
Associate Professor of Zoology, Ohio State University.

ANSWER.—Throughout the literature on hemophilia there is mention of several tests for the detection of the disease in the transmitters. It would certainly be valuable to the women of hemophiliac families to know whether or not they would transmit the disease to their sons. The two most important of these tests are: (1) the trypanocidal action of the blood serum of hemophiliac individuals and transmitters and (2) the blood types within a hemophiliac family.

Lavaran and Mensil discovered the presence in normal blood serum of a specific bodily protection against trypanocidal infection. Later Opitz and Zweig reported the absence, or greatly decreased trypanocidal power, of the blood serum of hemophiliac patients and hemophiliac transmitters. Later workers, including Weiner and Hartmann, concluded that the trypanocidal action of the serum cannot be considered as diagnostic for recognizing hemophiliac persons or those who transmit the disease.

It was Schlossmann who brought out the hypothesis that in a hemophiliac family those who have hemophilia and those who

transmit the disease have the same blood type. This too has not proved valid in all hemophiliac families.

There is really no absolute test to show whether or not a woman may transmit hemophilia to her sons. Perhaps the London physician tried these tests on the Spanish princesses and if they were positive he would have strong evidence, but not conclusive proof, that they could transmit hemophilia to their sons.

VACCINATION AGAINST SMALLPOX AND IMMUNIZATION AGAINST DIPHTHERIA

To the Editor:—I would greatly appreciate it if you would send me the detailed technic of vaccination for smallpox and technic of use of toxoid and toxin-antitoxin for immunization in diphtheria. I have a patient, aged 3½ years, who five days ago was vaccinated and who was subject to a severe reaction. Would you advise immediate use of toxoid for immunization, or wait for a period of time; if so, how long?

JAMES V. MENNELLA, M.D., Chicago.

ANSWER.—In vaccinating against smallpox, the multiple puncture method is the method of choice. The details of this method are described fully in the instructions that come with the vaccine virus. Instructions in regard to the dosage of diphtheria toxoid and of diphtheria toxin-antitoxin also come with the packages of the materials prepared for sale by manufacturers. The technic is simple: the required dose is injected subcutaneously. Toxoid and toxin-antitoxin are not used simultaneously—either one or the other. Reaction following vaccination against smallpox, unless due to infection and accompanied by febrile symptoms, is not a valid contraindication to toxoid immunization. If the reaction is associated with fever, one should wait with toxoid immunization until the fever has subsided completely.

ENDOCRINE IMBALANCE IN CHILD

To the Editor:—I have under observation a boy, aged 8 months. At 4 weeks or so he was operated on for congenital pyloric stenosis. At present an ophthalmologist is treating him for congenital glaucoma. His mother's brother and the son of his mother's sister had acromegaly. His paternal grandfather and all his eleven or so children are of a nervous disposition and have rather an increased libido. Would you suspect any relationship between the congenital anomalies and a probable endocrine imbalance of the child (pituitary, thyroid, for instance)? The baby's weight at birth was 9 pounds (4.1 Kg.) and is at present 18½ pounds (8.4 Kg.). He is breast fed. Are there any similar cases on record? Please omit name.

M.D., Michigan.

ANSWER.—The primary cause of glaucoma is still a mystery. The same statement is true of hypertrophic pyloric stenosis. The baby may have inherited some of its ancestors' hyperpituitarism. A roentgenogram of the sella would be helpful in deciding this point. In view of the weight at birth and the rather rapid gain, thyroid deficiency might be suspected. A roentgenogram of the wrist joint would help in deciding this point. Finally, thyroid should be given to the point of tolerance as a therapeutic test. If the baby tolerates more than the average amount of thyroid or shows clinical improvement, this therapy should be continued indefinitely.

SILICON COMPOUNDS AS INDUSTRIAL HAZARDS

To the Editor:—Will you kindly advise whether silicon, as used in the manufacture of glass, may be the cause of any occupational disease? I am especially interested in knowing the pathologic changes silicon may produce in the chest when inhaled as dust. Might it be a factor in the etiology of pulmonary tuberculosis or other industrial disability?

M. L. ALLEN, M.D., Cleveland.

ANSWER.—Instead of "silicon," the terms "silica," "silicon dioxide" or "silicates" are more often used in connection with the disease "silicosis," produced by exposure to siliceous dusts. The element "silicon" itself is *not* employed. The occurrence of silicosis in the glass industry is well established, although the many different forms of glass call for different formulas.

The probability of acquiring silicosis in the glass industry, or any other, depends on a number of factors, namely:

(*a*) The percentage of free silica in the materials employed.
(*b*) The quantity of dust to which workers are exposed.
(*c*) The size of the dust particles, only those below 10 microns in diameter being important.
(*d*) The duration of exposure.
(*e*) The susceptibility of the individual workman.

Silicosis may be defined as a disease due to breathing air that contains silica dusts. It is anatomically characterized by generalized fibrotic changes and the development of miliary nodulations in both lungs; clinically, by a shortness of breath, decreased chest expansion, lessened capacity for work, and increased susceptibility to tuberculosis. There are characteristic changes on roentgen examination. The disease is arbitrarily divided into first, second and third stages, which subdivisions are made for the convenience of description for possible compensation purposes.

Tuberculosis is prone to be superimposed on silicosis, and deaths are commonly due to tuberculosis, although uncomplicated silicosis may occasionally lead to death. A full discussion of silicosis in all its aspects may be found in International Labour Office Studies and Reports (Series F, Industrial Hygiene 13) "Silicosis," Records of the International Conference held at Johannesburg, South Africa, Aug. 13-27, 1930.

LUMBAR PUNCTURE HEADACHE

To the Editor:—I have a patient, an alcoholic addict, who was in a hospital to stop drinking. A spinal puncture for a Wassermann test was made six weeks ago and since then he has had a headache, mostly occipital, but radiating over the head, especially the right mastoid region, where occasionally sharp pains occur. This has been getting a little better with a good deal of rest in a recumbent position. It does not come on now until about an hour after rising in the morning. It lasts for a time after he has retired at night and then completely disappears. The Wassermann reactions of the blood and spinal fluid are negative. I shall be glad of any advice that may assist in relieving this patient. Please omit name.

M.D., Pennsylvania.

ANSWER.—In spite of its long duration this is probably a so-called lumbar puncture headache, which is due to leakage of spinal fluid from the subarachnoid space through the hole in the dura mater made by the needle. Sometimes the hole remains open for an unusually long time, and it may be that a tuft of arachnoid has herniated through it and acts as a wick. Of course, the small amount of fluid removed at the time of puncture would not in any way account for the long continued headache, but under the conditions described a hundred times that quantity may have seeped out later. The hole is bound to close before long, but meanwhile it may be well to try the effect of hypodermic injection of solution of pituitary, which has been known to relieve this kind of headache.

INDICATIONS FOR ERGOTAMINE TARTRATE

To the Editor:—In THE JOURNAL, Nov. 14, 1931, is an article advising the use of gynergen or ergotamine tartrate to relieve pruritus of renal or hepatic origin. Do you know of any contraindications to its use? I have a patient with polycystic kidneys (both badly affected) troubled with pruritus. Is the drug safe to use in a case of this kind?

LOIS L. GANNETT, M.D., Watertown, N. Y.

ANSWER.—Ergotamine does not seem to affect the kidneys directly. Its diuretic action is due to rise in blood pressure. Hence there would be no objection to its use in the condition described.

IRRADIATION IN CARCINOMA OF BREAST

To the Editor:—In Queries and Minor Notes (THE JOURNAL, February 27, p. 755) appears a reply to a question on irradiation in carcinoma of the breast in which the statement is made that preoperative irradiation is no longer advised. I do not agree and would like to predict that it will be advised more and more as time goes on. Burton Lee of the Memorial Hospital, New York, read a paper before a section of the American College of Surgeons in Pittsburgh in which he showed some very favorable figures in cases in which both preoperative and postoperative irradiation had been given, resulting in 48 per cent five year cures. Besides the effect on the lymphatics, irradiation also helps to control the actively dividing cells and also affects the so-called rest cells. Surgical statistics have not improved for years, and preoperative and postoperative irradiation properly used is going to improve surgical results. The percentage of five year or more cures is higher whenever proper preoperative and postoperative irradiation has been practiced.

G. D. BLISS, M.D., Altoona, Pa.

"PARTIAL AGNOSIA"

To the Editor:—In THE JOURNAL, January 30, page 420, M.D. inquires about a patient, aged 11, a boy (as usual), who knows his arithmetic but has peculiar difficulty in reading. You label the item "Partial Agnosia." Thanks for this addition to my private collection of names for the specific reading disability which, commencing with our old friend "congenital word-blindness" then includes Jackson's "developmental alexia" and Claiborne's "symbol amblyopia" (both 1906); then the twins "bradylexie" and "typheolexie"; then Bertha Engler's lovely "analphabetia partialis" and finally, with several intervening, Orton's interesting "strephosymbolia" (THE JOURNAL, April 7, 1928). Poor boy! But is his confusion over his reading lesson worse than that of the learned doctors in their attempts to name and explain his infirmity? If the neurologist does not cure him possibly his physician and teacher may obtain assistance from Gate's Improvement in Reading (New York, Macmillan Company).

JOHN M. ROBINSON, M.D., Duluth, Minn.

Council on Medical Education and Hospitals

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VERMONT: Burlington, June 22-24. Sec., Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, June 15-18. Sec., Dr. J. W. Preston, 803 Medical Arts Bldg., Roanoke.

WYOMING: Cheyenne, June 6. Sec., Dr. W. H. Hassed, Capitol Bldg., Cheyenne.

Alabama January Report

Dr. J. N. Baker, secretary, Alabama State Board of Medical Examiners, reports the written examination held at Montgomery, Jan. 12-15, 1932. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Four candidates were examined, all of whom passed. One physician was licensed by endorsement, Jan. 11, 1932. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Rush Medical College		(1931)	87.8
Tulane University of Louisiana School of Medicine		(1931)	89.6
University of Tennessee College of Medicine		(1931)	84.2
Royal Univ. of Naples Faculty of Med. and Surg.		(1923)	82.4

College	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Emory University School of Medicine		(1930)	U. S. Navy

Nevada Reciprocity Report

Dr. Edward E. Hamer, secretary, Nevada State Beoard of Medical Examiners, reports three physicians licensed by reciprocity with other states at a meeting held in Reno, Feb. 2, 1932. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Medical Evangelists		(1929)	California
Loyola University School of Medicine		(1930)	Illinois
State University of Iowa College of Medicine		(1925)	Iowa

Rhode Island January Examination

Dr. Lester A. Round, director, Rhode Island State Public Health Commission, reports the written and practical examination held at Providence, Jan. 7-8, 1932. The examination covered 7 subjects and included 70 questions. An average of 85 per cent was required to pass. Three candidates were examined, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Georgetown University School of Medicine		(1930)	89.6
Tufts College Medical School	(1928) 85.4,	(1931)	85.5*

* Certificate being withheld pending completion of internship.

Book Notices

The Practitioners Library of Medicine and Surgery. Volume I: Anatomy and Physiology as Applied to Practical Medicine. Volume II: The Technic of Physical and Laboratory Examination in Clinical Medicine [Supervising Editor, George Blumer, M.D.] Cloth. Price, $10 per volume. Pp. 1271 and 984, with illustrations. New York & London: D. Appleton & Company, 1932.

The first two volumes of this tremendous series are now available. They cover anatomy and physiology and the technic of clinical medicine. The idea of covering the entire field of medicine in a single system is, of course, not new. In all systems of medicine there are inequalities regardless of the men selected to do the work. Dr. Blumer has chosen most wisely in selecting contributors, all being recognized as authorities in the fields they discuss.

A word may be said first as to the excellent form in which these volumes appear. They are handsomely bound in buckram. The type is large, the illustrations are numerous, many of them in colors, and the material is adequately broken up with headings and subheadings.

Although anatomy is covered in seven articles and physiology in twenty, the anatomic portion occupies 675 pages and the physiologic portion only 500. The articles on inheritance and constitution by Drs. Davenport and Blumer are exceedingly valuable at this time, since practitioners are just beginning to orient themselves in this field. The section on energetics, dietetics and metabolism unfortunately is more chemical and biologic than clinical, but presumably this will be amended in further articles.

It is, of course, impossible in the scope of a review to present even a list of all the material included in these two volumes. The second book is one of the most practical volumes ever added to a system. It is concerned with methods. Here are adequate presentations of history taking, physical diagnosis, the use of various instruments and devices, technics for examination of various body fluids, x-ray and pathologic technics, bacteriologic and immunologic methods, and special considerations of means of diagnosis in diseases classified according to various groups and systems.

Each of the books has its own index, excellently prepared, and there is to be a combination index for all the volumes when the set is completed.

These volumes are so satisfactory that it is safe to recommend this system particularly to the physician who wishes to have available a single reference work covering every field of medicine. The articles are authoritative and apparently complete. A study of various subjects selected at random failed to reveal any marked deficiencies in the handling of any one subject. Moreover, the material is quite up to date. The appearance of the remaining volumes is awaited with interest.

Lehrbuch der Nervenkrankheiten für Studierende und praktische Ärzte in 30 Vorlesungen. Von Robert Bing, Professor an der Universität Basel. Fourth edition. Paper. Price, 25 marks. Pp. 570, with 190 illustrations. Berlin: Urban & Schwarzenberg, 1932.

When a textbook on nervous diseases reaches its fourth edition and a book on diagnosis of nervous diseases by the same author has had still more editions, it is obvious that these works meet adequately a large demand. The first twenty-two lectures are devoted to organic diseases of the peripheral nerves, spinal cord and brain; two are allotted to endocrine diseases, one to the vegetative system, and the last five to functional neuroses. Ten pages of selected and classified bibliography and a subject index complete the volume. The book is eminently practical. The necessary groundwork of relations of symptoms to centers and fiber tracts is presented with great clarity, both in the text and in the excellent diagrams and illustrations. Little space is given to pathologic histology but much to treatment, not least to prescriptions. Some of the therapeutics appears to be rather old fashioned and unduly conservative. Thus, section of the trigeminal root is mentioned only as a last resort in exceptionally severe cases of trigeminal neuralgia, and even alcohol injection is not considered well established treatment. Facial spasm is not clearly distinguished from tic, but the author is thoroughly modern in considering tics to be of striatal origin. We are told that the hopes for results from parathyroid treatment in tetany have been disap-

pointing. Malariotherapy in dementia paralytica is heartily endorsed but tryparsamide is categorically condemned on account of the danger to the optic nerves, which seems unjust to those who have given this drug a thorough trial. The author is wary of ventriculography and encephalography. The operation of chordotomy is briefly mentioned, the modern operations on the sympathetic ganglions and rami not at all. Perhaps Bing is to be commended for choosing well established diagnostic and therapeutic measures and for erring on the side of conservatism, as the small size of the book does not allow of discussion of controversial matters. The wide experience and reading and mature judgment of the author must impress every reader of this example of the highest type of Lehrbuch.

Traité de technique opératoire oto-rhino-laryngologique. Par Georges Portmann, professeur à la Faculté de médecine de Bordeaux. Publié avec la collaboration de Mm. H. Retrouvey et Jean Despons, oto-rhino-laryngologistes des hôpitaux, Paul Leduc, anesthésiste, et G. Martinaud, assistants à la clinique oto-rhino-laryngologique de la Faculté de médecine de Bordeaux. In two volumes. Cloth. Price, 350 francs. Pp. 865, with 467 illustrations. Paris: Masson & Cie, 1932.

This is a complete work on operative technic in the field of otorhinolaryngology. The whole subject is covered in a comprehensive manner and the fifty chapters cover almost every possible operation connected with the ear, nose, throat and larynx. Great attention is given to details with reference to the arrangement of operating rooms, instruments and illumination. After a chapter on general principles in special surgery, anesthesia both local and general is discussed. Various operations on the ear, beginning with that on the auricle and proceeding inward, including the various types of mastoidectomy, extradural abscess, cerebral and cerebellar abscess and sinus thrombosis, are detailed. Surgery of the nose and accessory sinuses is followed by surgical treatment of diseases of the pharynx and finally by the various types of operations performed on the larynx. In taking up each subject, the author and his collaborators give concise details regarding the indications for and the method of procedure. The various steps in each operation are shown by means of beautiful illustrations, so that the reader can see in detail every maneuver that is used. The after-treatment is given accurately, so that one can follow the patient from his preparation for the operation throughout the surgical procedure to the careful and precise after-treatment. With his usual clarity, Portmann thus presents the subject in a manner that makes delightful reading and cannot fail to give the reader a definite and comprehensive view of the various operations employed. This work appears in two volumes, which makes it easier to handle. The paper is of excellent quality and the illustrations are well presented. The work as a whole will prove of immense value to every otolaryngologist who is desirous of developing surgical technic to the highest degree of perfection.

Les dyskératinisations épithéliomateuses. Par J. Rousset. Préface du Professeur J. Nicolas. Paper. Price, 60 francs. Pp. 599, with 111 illustrations. Paris: Masson & Cie. 1931.

The history of the epithelial dyskeratoses and so-called precancer lesions of the skin has been the object of numerous publications and study in recent years. The author of the present volume exhaustively reviews and criticizes the literature, and presents a large amount of original work, together with illustrations lending support to his own theories of origin and course of these conditions. He demonstrates that the dyskeratoses are of characteristic appearance and course. Three chief lesions are studied in detail. These are the dyskeratoses known as the disease of Paget, and the disease of Bowen and the closely resembling epithelioma of Paget. The last named is included because of its close clinical appearance and characteristic course, although it is benign in contrast to that of the other two diseases.

Although Paget's disease is ordinarily considered to involve only the breast, it may occur on almost any surface of the skin or mucosa. It is relatively infrequent except on the breast. The course and pathogenesis are discussed in detail and are shown by numerous illustrations from sections of 160 cases studied. The previous uncertainty as to this disease being a benign or a malignant condition is well explained and illustrated. Unless treated early and radically, it has been found that most of the cases have recurred as a true carcinoma or have metastasized.

The disease of Bowen has scarcely been recognized as an entity by most clinicians since its rather recent discovery. Bowen is to be given especial credit for recognizing its true malignant condition, since he described it before the development of a recognizable malignant condition. This later occurred in his cases. The evolution, characteristics and differences from Paget's disease are described and illustrated from seventy-one clinical cases studied. The prognosis and treatment of Bowen's disease are as serious as those of Paget's disease.

The epithelioma of Paget is quite characteristic as compared with other skin epitheliomas and the dyskeratoses of Paget and Bowen. It is included here because of its close clinical resemblance to Paget's disease, particularly of the breast. The epithelioma of Paget is characteristically benign with no regional metastases; consequently, it may be cured by various methods of local destruction. Unfortunately, this condition can rarely be correctly diagnosed from the malignant dyskeratoses without a microscopic examination. A complete differential diagnosis from many of the benign skin diseases, including nevi and malignant melanosarcoma, is discussed, but it is emphasized that a microscopic section should usually be made.

This scientific monograph should find a place in all libraries for frequent reference with regard to cases resembling the dyskeratoses of the skin or mucosa and especially with reference to the diagnosis and treatment of Paget's disease of the breast.

The Fundus of the Human Eye: An Illustrated Atlas for the Physician. By Ernest Clarke, C.V.O., M.D., F.R.C.S., Consulting Surgeon to the Central London Ophthalmic Hospital. Cloth. Price, $4.50. Fifty-one plates. New York: Oxford University Press, 1931.

Dr. Clarke is to be congratulated on the presentation of well selected pictures of the fundus of the human eye. The illustrations are truthfully executed, as Hamblin illustrations always are. The selection of pathologic conditions represented is excellent. While the illustrations are so well executed that legends are scarcely necessary, a somewhat detailed clinical history would make them more interesting. As fundus conditions constitute a lifetime study, this little volume is a decided help, not only to the general physician but also to the ophthalmologist.

Allen's Commercial Organic Analysis: A Treatise on the Properties, Modes of Analysis, and Proximate Analytical Examination of the Various Organic Chemicals and Products Employed in the Arts, Manufactures, Medicine, etc. With Concise Methods for the Detection and Estimation of Their Impurities, Adulterations, and Products of Decomposition. Volume IX: The Proteins of Plants, the Proteins of Milk, Milk, Milk Products, Meat and Meat Products. Edited by C. Ainsworth Mitchell, M.A., D.Sc., F.I.C. By C. Ainsworth Mitchell and the Following Contributors: C. Jordan Lloyd, G. D. Elsdon, H. Leffmann, John Golding, E. R. Bolton and C. Robert Moulton. Fifth edition. Cloth. Price, $7.50. Pp. 617, with 25 illustrations. Philadelphia: P. Blakiston's Son & Company, Inc., 1932.

This volume has been revised and in some instances partially rewritten. The scope of the book has been reduced slightly, certain sections having found their places in previous volumes. It contains five sections, which have been prepared by different authors, one a former co-author; the other contributors are new. The sections are on proteins of plants; the proteins of milk; milk; milk products; meat and meat products. The latter, comprising approximately two thirds of the volume, appears to be a comprehensive treatise as used by the Institute of American Meat Packers on the description, detection and estimation of the various adulterations, impurities and decomposition products. A bibliography appears at the end of each section. The authors are to be commended, as the material on the whole is well chosen, maintaining the standards established in former editions. The book is a worthy companion to the preceding volumes and may be heartily recommended.

Epidemic Encephalitis: Etiology, Epidemiology, Treatment. Second Report by the Matheson Commission. William Darrach, Chairman. Fabrikoid. Price, $1.50. Pp. 155. New York: Columbia University Press, 1932.

The Matheson Commission consists of eight men with William Darrach as chairman and Hubert S. Howe as secretary. Josephine B. Neal of the New York City Health Department is executive secretary and Helen Harrington is epidemiologist. The first and larger report, which appeared in 1929, contained a review of the literature and a complete bibliography up to the third quarter of 1928. The present volume brings the literature up to the end of 1929. The subject matter

is presented in four chapters, on etiology, other types of encephalitis including postvaccinal encephalitis, treatment, and epidemiology. The ideally arranged bibliography and author and subject indexes occupy eighty-seven pages. This carefully compiled book with its excellent summaries by the editors will be found extremely convenient to all students of encephalitis.

Über Apraxie: Eine klinische Studie. Von Otto Sittig. Sonderausgabe von Heft 63 der „Abhandlungen aus der Neurologie, Psychiatrie, Psychologie und ihren Grenzgebieten." Paper. Price, 24 marks. Pp. 248, with 15 illustrations. Berlin: S. Karger, 1931.

The more aphasia is studied from the scientific point of view the more obvious it is that Hughlings Jackson's philosophical conceptions, presented more than fifty years ago, are sound in principle. He was the first to describe apraxia but did not give it a name. Liepmann in 1900 contributed considerably to this topic but divided apraxia into sensory and motor. He later modified this point of view. Pathologically, cases of apraxia have been reported as resulting from lesions in the callosum, gyrus supramarginalis, frontal lobe and parietal lobe. Sittig calls attention to the occurrence of truncal apraxia, which was quite pronounced in one of his cases, the patient often taking half an hour or more to lie down. He further reports a case in which the face and arms were but slightly apraxic, the legs more so, with the trunk mostly involved. The author discusses the localization of apraxia, which is much in doubt. The present monograph is a thorough review of our knowledge of the subject. The author attempts to aline the reported cases with jacksonian principles of cerebral function. It is altogether a praiseworthy book.

Medicolegal

Liability of Hospital for Negligent Discharge of Patient

(Bowditch v. French Broad Hospital, Inc. (N. C.), 159 S. E. 350)

Bowditch was carried to the defendant hospital, a private hospital organized and operated for gain, for treatment for injuries to his right hip and leg. He selected and employed his own physician, Dr. Clark. Apparently, roentgenograms were made of the injured hip, and Dr. Clark told Bowditch that he had a bad sprain and bruise and that there was no reason why he could not be cared for as well at home as at the hospital. Later, according to Bowditch's testimony, he asked the nurse assigned to his case by the hospital whether Dr. Clark had said anything about his being discharged from the hospital. The nurse replied in the negative, adding, "but if the doctor says you haven't got anything but a bruise, don't see why you can't go," but Bowditch replied that he did not desire to return home without the consent of Dr. Clark. He was told that Dr. Clark would be called and that if he advised Bowditch's discharge, the hospital bill would be presented and he would be discharged. Later, the bill was presented and the personal property that had been taken from Bowditch on his admission to the hospital, for safe-keeping, was returned to him. Bowwitch, it would appear from his testimony, assumed that Dr. Clark had ordered his discharge, and later he left the hospital. Claiming that as a matter of fact his leg was broken and that his premature discharge caused great pain and suffering and resulted in permanent injury, he sued the hospital. At the trial, the nurse who cared for Bowditch testified that he told her he was going home, that she tried to get in touch with his physician but failed to do so, and that on reporting that fact to Bowditch he said he could not wait and had to go home. There was uncontradicted evidence that the duties of a student-nurse, as the nurse who attended Bowditch was, were to carry out the physician's orders and to observe the hospital rules, but that such a nurse had no authority to discharge patients from the hospital. The physician in charge of a patient has the sole and exclusive right and authority to discharge him. A verdict was rendered in favor of Bowditch, and the hospital thereupon appealed to the Supreme Court of North Carolina.

A private hospital, said the Supreme Court, operated for profit, is held to the duty of ordinary care in the treatment and protection of patients, and is responsible for injuries resulting from failure to perform such duty. The liability of hospitals, however, for the negligence of nurses employed or furnished by the hospital is a question of law which has created widely divergent theories. The courts of New York and Louisiana have adopted a theory which is aptly illustrated in an opinion rendered by Cardozo, J., in *Schloendorff* v. *Society of New York Hospital,* 211 N. Y. 125, 105 N. E. 92, reading, in part, as follows:

> It is true, I think, of nurses, as of physicians, that, in treating a patient, they are not acting as the servants of the hospital. The superintendent is a servant of the hospital; the assistant superintendents, the orderlies, and the other members of the administrative staff are servants of the hospital. But nurses are employed to carry out the orders of the physicians, to whose authority they are subject. The hospital undertakes to procure for the patient the services of a nurse. It does not undertake, through the agency of nurses, to render those services itself.

The courts of Alabama, Oklahoma, Idaho and Kentucky adopt the general theory that nurses in a hospital are employees, and not independent contractors, and hence a hospital is liable to a patient who suffers injury through the negligence of a nurse. *Norwood Hospital* v. *Brown,* 219 Ala. 445, 122 So. 411; *Birmingham Baptist Hospital* v. *Branton,* 218 Ala. 464, 118 So. 741; *Skidmore* v. *Oklahoma Hospital* (Okla. Sup.) 278 P. 334; *Hayburst* v. *Boyd Hospital,* 43 Idaho 661, 254 P. 528; *Hicks' Adm'x.* v. *Harlan Hospital,* 231 Ky. 60, 21 S. W. (2d) 125. See, also, 22 A. L. R. 341; 39 A. L. R. 1431.

However, a decision determining the merits of the present case did not require this court to adopt either theory of liability. In the case at bar the patient selected his own physician. The hospital assumed no liability and was charged with no responsibility for his treatment or the time when the relationship of patient and physician should be terminated by the discharge of the patient. Nor was the hospital, under the circumstances, charged with any duty in procuring a termination of the relationship of patient and physician. Hence, if no such duty was imposed on the defendant hospital, and if it did not assume the performance of such a duty, then there was no negligence on its part, and consequently no liability.

The record, said the court, discloses that the patient requested the nurse to secure for him certain information from his physician. If we assume that the nurse negligently failed to do so, it is apparent she was acting on the request of the patient in a matter with which the defendant hospital was not concerned. Therefore it was error for the trial court to refuse to instruct the jury, at the request of the defendant hospital, that if they found that the nurse was assigned to the patient to carry out the orders and instructions of his physician and undertook to procure the physician's consent to the patient's returning home, she was acting as the agent of the patient and not as the agent of the hospital, and the hospital would not be bound by her act.

The Supreme Court accordingly awarded a new trial.

Alleged Malpractice in Treating Fractured Leg

(Ferguson v. Glenn (N. C.), 159 S. E. 5)

Ferguson was run over by an automobile, Aug. 3, 1927. His left leg was broken in two places, just below the knee and just above the ankle. He was carried to a hospital, where the defendant-physician placed the broken leg in a plaster cast. About thirty days after the accident, Ferguson returned to his home. He went to the hospital, however, from time to time, for treatment by the defendant. The cast was removed some time in December, 1927. Then it was found that union had occurred in the fracture just below the knee but not in the fracture just above the ankle. When Ferguson was told that union had not occurred, he requested the defendant to operate if he thought an operation would be helpful. The defendant, however, advised sixty days' delay. Ferguson did not return to the defendant for further treatment. At no time while he was under the care of the defendant was a roentgenographic examination made. On Jan. 16, 1928, Ferguson was operated on by another physician, and the broken

bones then united, but, according to Ferguson's testimony, his leg was weak, he walked with a decided limp, and he continued to suffer pain. He thereafter brought action against the defendant, the physician by whom he had been first treated, charging negligent failure to reset the broken bones, negligent failure to take roentgenograms or to have them taken, as he was requested by Ferguson to do, and negligent failure to operate when non-union was discovered.

At the trial, the physician who treated Ferguson after the defendant had done so appeared as a witness for the defendant and testified that the treatment which the defendant had rendered was the recognized treatment for injuries such as that from which the plaintiff, Ferguson, suffered. He testified further that when he first examined the plaintiff he found that there was a low grade union at the corner of the tibia. Roentgenograms taken under the direction of this witness showed that there had been an interference with the blood supply at the site of the injury, which might have resulted from infection at the time of the accident. There was no evidence of any internal infection. The bones were not united and there was no callus. Callus was not thrown out, the witness thought, because of the infection. There was no infection at the time of the operation, and six months later the bones began to unite. In fractures of this kind, said the witness, the taking of roentgenograms would depend on the circumstances. It might be more important not to disturb a patient than to take a roentgenogram. Ordinarily the taking of a roentgenogram would do no harm, but it might do harm to move a patient in order to have a roentgenogram made. If the bones had not united at the end of thirty-nine days, because infection had prevented the formation of callus, the witness would not consider it usually safe to operate under six months, because of the danger of relighting the infection.

At the close of the evidence, the defendant moved for a judgment of non-suit, which was denied, and the jury thereafter returned a verdict in favor of the plaintiff. The defendant appealed to the Supreme Court of North Carolina.

The evidence, said the Supreme Court, failed to show a breach of any duty which the defendant as a physician owed to his patient; or any injury to his patient's leg resulting from treatment; or that the physician did not possess the requisite degree of learning, skill, and ability necessary to practice his profession and which others similarly situated ordinarily possessed; or that the physician failed to exercise reasonable and ordinary care and diligence in the use of his skill and in the application of his knowledge to the treatment of his patient's injury; or that the defendant failed to exert his best judgment in the treatment or care of the patient's leg, so long as the relation of physician and patient continued. In the absence of the evidence to prove the occurrence of one or more of the conditions stated, it was error for the trial court to decline the request of the defendant for a judgment of non-suit.

The law, which seeks to be impartial and to establish a just rule for both parties, prescribes the standard of duty which a physician owes to his patient. It recognizes that medicine is a science and an art. It requires one who professes knowledge of the science and skill of the art to have such knowledge and skill as are ordinarily possessed by men in his profession who are similarly situated. A physician is required to use his best judgment and his best skill in the treatment of his patient. A physician who has fully measured up to these requirements cannot be held liable for the consequences. Neither justice nor sound policy requires that a physician, although learned in his science and skilled in the practice of his art, shall insure his patient's recovery and restoration to his previous health and physical strength and condition.

It would seem to be a reasonable inference that a physician who is duly licensed to practice his profession possesses the knowledge of his science and the skill in his art which are required by law, and that moral character which insures his best judgment in the professional care and treatment of his patient. A plaintiff who alleges to the contrary with respect to a licensed physician is and should be required to offer evidence to sustain his allegations. Otherwise his action for the recovery of damages alleged to have been caused by negligence and unskilful treatment should be dismissed.

The judgment of the lower court in favor of the patient was therefore reversed and the cause dismissed.

Society Proceedings

COMING MEETINGS

American Medical Association, New Orleans, May 9-13. Dr. Olin West, 535 North Dearborn Street, Chicago, Secretary.

American Association for the Study of Goiter, Hamilton, Ontario, June 14-16. Dr. J. R. Yung, 670 Cherry St., Terre Haute, Ind., Secretary.

American Association for the Study of the Feeble-Minded, Philadelphia, May 26-29. Dr. Groves B. Smith, Godfrey, Illinois, Secretary.

American Association of Genito-Urinary Surgeons, Niagara Falls, Ontario, Canada, May 26-28. Dr. Henry L. Sanford, 1621 Euclid Avenue, Cleveland, Secretary.

American Association of Medical Milk Commissions, Washington, D. C., May 20-21. Dr. Harris Moak, 360 Park Place, Brooklyn, N. Y., Sec'y.

American Bronchoscopic Society, Atlantic City, May 21. Dr. Richmond McKinney, 899 Madison Avenue, Memphis, Tennessee, Secretary.

American Gynecological Society, Quebec, May 30-June 1. Dr. Otto H. Schwarz, 630 South Kingshighway, St. Louis, Secretary.

American Heart Association, New Orleans, May 10. Dr. Irl C. Riggin, 450 Seventh Avenue, New York, Executive Secretary.

American Laryngological Association, Atlantic City, May 19-21. Dr. George M. Coates, 1721 Pine Street, Philadelphia, Secretary.

American Laryngological, Rhinological and Otological Society, Atlantic City, May 23-25. Dr. Robert L. Loughran, 33 East 63d Street, New York, Secretary.

American Neurological Association, Atlantic City, June 6-8. Dr. Henry Alsop Riley, 117 East 72d Street, New York, Secretary.

American Ophthalmological Society, New London, Conn., June 27-29. Dr. Emory Hill, 501 East Franklin Street, Richmond, Va., Secretary.

American Orthopedic Association, Toronto, Canada, June 15-18. Dr. DeForest P. Willard, 1916 Spruce Street, Philadelphia, Secretary.

American Otological Society, Atlantic City, May 17-19. Dr. Thomas J. Harris, 104 East 40th Street, New York, Secretary.

American Pediatric Society, Rochester, Minnesota, May 26-28. Dr. Hugh McCulloch, 500 South Kingshighway, St. Louis, Secretary.

American Psychiatric Association, Philadelphia, May 30-June 3. Dr. Clarence O. Cheney, 722 West 168th Street, New York, Secretary.

American Society of Clinical Pathologists, New Orleans, May 6-9. Dr. A. S. Giordano, 531 North Main Street, South Bend, Ind., Secretary.

American Surgical Association, New Haven, Conn., May 16-18. Dr. Vernon C. David, 59 East Madison Street, Chicago, Secretary.

American Therapeutic Society, Baltimore, May 16-17. Dr. Grafton Tyler Brown, 1801 I Street N.W., Washington, D. C., Secretary.

American Urological Association, Toronto, May 30-June 2. Dr. Gilbert J. Thomas, 1009 Nicollet Avenue, Minneapolis, Secretary.

Association for the Study of Internal Secretions, New Orleans, May 9-10. Dr. F. M. Pottenger, 1930 Wilshire Boulevard, Los Angeles, Secretary.

Connecticut State Medical Society, New Haven, May 25-26. Dr. Charles W. Comfort, Jr., 27 Elm Street, New Haven, Secretary.

Georgia, Medical Association of, Savannah, May 17-20. Dr. Allen H. Bunce, 139 Forrest Avenue N.E., Atlanta, Secretary.

Illinois State Medical Society, Springfield, May 17-19. Dr. Harold M. Camp, 203 Lahl Building, Monmouth, Secretary.

Louisiana State Medical Society, New Orleans, May 9-10. Dr. P. T. Talbot, 1430 Tulane Avenue, New Orleans, Secretary.

Maine Medical Association, Rangeley, June 16-18. Dr. Philip W. Davis, 22 Arsenal Street, Portland, Secretary.

Massachusetts Medical Society, Boston, June 8-10. Dr. Walter L. Burrage, 182 Walnut Street, Brookline, Secretary.

Medical Library Association, San Francisco, June 20-22. Miss Marjorie J. Darrach, 645 Mullett Street, Detroit, Secretary.

Medical Women's National Association, New Orleans, May 8-9. Dr. Sylvia Allan, Winthrop College, Rock Hill, S. C., Secretary.

Minnesota State Medical Association, St. Paul, May 23-25. Dr. E. A. Meyerding, 11 West Summit Avenue, St. Paul, Secretary.

Missouri State Medical Association, Jefferson City, May 23-26. Dr. E. J. Goodwin, 634 North Grand Boulevard, St. Louis, Secretary.

National Tuberculosis Association, Colorado Springs, June 6-9. Dr. Charles J. Hatfield, 7th and Lombard Streets, Philadelphia, Secretary.

Nebraska State Medical Association, Lincoln, May 24-26. Dr. R. B. Adams, Center McKinley Building, Lincoln, Secretary.

New Hampshire Medical Society, Manchester, May 17-18. Dr. D. E. Sullivan, 7 North State Street, Concord, Secretary.

New Jersey, Medical Society of, Atlantic City, June 15-17. Dr. J. B. Morrison, 66 Milford Avenue, Newark, Secretary.

New Mexico Medical Society, Santa Fe, May 19-21. Dr. L. B. Cohenour, 219 West Central Avenue, Albuquerque, Secretary.

New York, Medical Society of the State of, Buffalo, May 23-25. Dr. Daniel S. Dougherty, 2 East 103d Street, New York, Secretary.

North Dakota State Medical Association, Grand Forks, June 1-2. Dr. Albert W. Skelsey, 18 Broadway, Fargo, Secretary.

Oklahoma State Medical Association, Tulsa, May 24-26. Dr. Claude A. Thompson, Manhattan Building, Muskogee, Secretary.

Pacific Northwest Medical Association, Spokane, Wash., June 27-29. Dr. Frederick Epplen, 1215 Fourth Avenue, Seattle, Secretary.

Rhode Island Medical Society, Providence, June 2. Dr. J. W. Leech, 369 Broad Street, Providence, Secretary.

South Dakota State Medical Association, Watertown, June 20-22. Dr. John F. D. Cook, Langford, Secretary.

Western Branch of the American Urological Association, Portland, Ore., July 1-2. Dr. F. S. Dillingham, 548 S. Spring Street, Los Angeles, Secretary.

West Virginia State Medical Association, Parkersburg, June 21-23. Mr. J. W. Savage, Professional Building, Charleston, Executive Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Hygiene, Baltimore

15: 1-317 (Jan.) 1932. Partial Index

*Vasomotor Reactions to Localized Drafts. C.-E. A. Winslow and L. Greenburg, New Haven, Conn.—p. 1.
*Vaccine in Prevention of Common Cold: An Experiment. W. E. Brown, Cincinnati.—p. 36.
Hemophilus Influenzae in Upper Respiratory Disease and in Health, 1928-1930. Janet M. Bourn, Baltimore.—p. 64.
*Study of Certain Epidemiologic Factors in Pneumonia of Children. Selma M. Shultz, New York.—p. 80.
Behavior of Rabbit Virus III in Tissue Culture. T. Topacio and R. R. Hyde, Baltimore.—p. 99.
Method for Subdividing Decennial Age-Groups of Deaths. R. A. Q. O'Meara, Dublin, Ireland.—p. 125.
Irish Life Tables, Numbers 1 and 2, for the Years 1911 and 1926, and Some of the More Important Deductions from Them. J. W. Bigger and R. A. Q. O'Meara, Dublin, Ireland.—p. 138.
Cutaneous Retention of Infective Larvae of Dog Hookworm, Ancylostoma Caninum, and Inflammatory Reaction to Skin Penetration. J. E. Stumberg, Baltimore.—p. 186.
Air Dissemination of Bacteriophage in Relation to Air-Borne Infection. M. G. Colvin, New Haven, Conn.—p. 247.
Sterilization and Growth of Eggs and Larvae of the Blow Fly. O. R. Causey, Baltimore.—p. 276.
Healing Properties of Merthiolate. H. M. Powell, W. A. Jamieson and G. F. Kempf, Indianapolis.—p. 292.
Physical Examination of High School Students: Report of One Thousand Three Hundred and Twenty-Eight Examinations. Edith S. Hewitt and K. B. Geddie, Rochester, Minn.—p. 298.
Comparison of Anthelmintic Properties of Hexylresorcinol and Heptylresorcinol. P. D. Lamson, E. L. Caldwell, H. W. Brown and C. B. Ward, Nashville, Tenn.—p. 306.
Advantages of Locke's Blood Medium in Culture of Parasitic Protozoa of Digestive Tract. C. A. Kofoid and Ethel McNeil, Berkeley, Calif.—p. 315.

Vasomotor Reactions to Localized Drafts.—Winslow and Greenburg report that a localized draft on the head caused a fall in the skin temperature of the face and in the temperature of the nasal mucosa. The amount of vasoconstriction of the head areas was considerably less with exposure to a given local atmospheric temperature when the given effective temperature affected the whole body. The head areas recovered their normal temperature rapidly after the cessation of a local draft. Exposure of the head to a local draft caused little change in the trunk, thighs and legs but was followed by distinct reflex vasomotor changes in the hands and feet. A slight chilling caused a rise in the skin temperature of the extremities, while a more severe chilling produced a fall. A localized draft on the feet caused a marked and sharp fall in the skin temperature of the soles of the feet, which was followed by slow and incomplete recovery after cessation of the draft. As in the case of a draft on the head, however, the exposed part did not show as much vasoconstriction at a given effective temperature produced on the feet by a local draft as it did when the whole body was exposed to the same effective temperature. Chilling of the feet by local drafts produced no marked and consistent reflex changes in the face, hands, trunk or thighs and legs. It caused, however, a distinct reflex rise in the temperature of the nasal mucosa and a less marked rise in the temperature of the oral mucosa. There was nothing in the authors' observations to indicate that localized drafts produce any derangements of vasomotor reaction differing in such a way from those caused by uniform chilling of the body surfaces as a whole as to suggest a special influence on respiratory infection. Chilling of the head caused less vasoconstriction of the mucous membranes than exposure of the entire body to a corresponding effective temperature, and chilling of the feet actually caused dilatation of the blood vessels of the nose and throat. The authors' work does not confirm the general belief that chilling of the feet is especially harmful.

Vaccine in Prevention of Common Cold.—The statistical results of an experiment performed by Brown on the value of vaccine in the prevention of the common cold show little, if any, improvement as regards common colds in the experimental group as a whole compared with the control group. Individuals in the experimental group appear to have received some benefit. This is in accord with the observations that the group as a whole was not completely desensitized to the particular antigens used. Better results may be possible with an increased dosage of the vaccine or by employing with each individual the particular antigens to which he may be shown sensitive.

Epidemiologic Factors in Pneumonia of Children.—Shultz determined the incidence of pneumococcus carriers by cultures from the throats of eighty-six individuals, representing the families of twenty-one children with pneumococcus pneumonia. In eleven carriers, or 12.7 per cent of those studied, the type of pneumococcus found was the same as that isolated from the pneumonia patient. The virulence of the pneumococcus from several cases was compared with the virulence of the strains isolated from the corresponding carriers. There was no significant variation. The virulence of type I organisms obtained from cases and carriers was higher than the virulence of type III or V isolated from the cases. The duration of the carrier state was followed in thirty-five convalescent children and was found to vary between 2 and 152 days. Types I and III remained in the pharynx for a longer period of time than type II or the subdivisions of group IV. The pneumococci found to replace the infecting types did not differ greatly from those found in the pharynx of the healthy contact. The unclassified pneumococcus which apparently replaced the infecting type might in some instances have been a degraded form of the original strain. Two children who developed symptoms of pneumonia in the hospital were studied from the point of view of ward infection. The sources of the infections could not be traced. On the basis of her observations the author concludes that until further study increases knowledge of the factors involved in the etiology of pneumonia, preventive measures can be directed only toward the epidemiologic control of the suspected modes of transmission in children—healthy carriers and convalescent patients.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

27: 177-302 (Feb.) 1932

*Mensuration of Heart and Chest in Left Postero-Anterior Oblique Position: Comparative Study: I. Relation of Transverse Diameter of Heart to Thorax. W. W. Fray, Rochester, N. Y.—p. 177.
Traction Diverticulum of Esophagus: Ten Cases Diagnosed by Roentgen Means. M. Sturtevant, L. L. Shapiro and R. P. Wallace, New York.—p. 187.
Diagnostic Value of Prepyloric and Pyloric Roentgen Observations. R. S. Stone and H. E. Ruggles, San Francisco.—p. 193.
Atonic Gallbladder and Strawberry Gallbladder. A. Rossi, Parma, Italy.—p. 205.
*Localization of Foreign Bodies in Lung by Roentgen Examination. H. K. Pancoast and E. P. Pendergrass, Philadelphia, with Comments by G. Tucker, Philadelphia.—p. 225.
An Original Method of Estimating Kidney Function by Means of Roentgen Ray in Intravenous Urography. E. C. Carhart, Los Angeles.—p. 234.
Historical Development of Roentgen Diagnosis of Pathologic Appendix. J. Buckstein, New York.—p. 236.
*Small Radium Needles Versus Radon Implants. C. L. Martin, Dallas, Texas.—p. 240.
Hemangioma: Some Observations on Results of Radiation Therapy. H. Roesler, Boston.—p. 249.
A Critic of Stereoroentgenography. H. C. Sweany, Chicago.—p. 257.
Life History of Lithopedion. L. R. Sante and F. Emmert, St. Louis.—p. 262.
Roentgenographic Visualization of Liver and Spleen in the Human: Preliminary Report. C. J. Tripoli, E. Haam and E. B. Lehman, New Orleans.—p. 265.
Unusually Located Lipoma, Complicated by Foreign Body. I. Weitzner, New York.—p. 267.

Mensuration of Heart and Chest.—Fray defines a cardiothoracic index which permits comparison of the size of the heart with that of the thorax in the left oblique chest film. The accuracy of this index in determining cardiac enlargement was tested in a group of seventy-five cases in which the cardiac changes of all the abnormal hearts was checked by necropsy observations. The normal heart was commonly found to have an index above 1.8, with an average index of 2.0 for the entire normal group. The enlarged heart was almost invariably found to have an index of 1.8 or below.

Localization of Foreign Bodies in Lung by Roentgen Examination.—Pancoast and Pendergrass report two cases in which it was previously impossible to furnish roentgenoscopic guidance during attempts at bronchoscopic localization of foreign bodies because the foreign bodies could not be localized roentgenoscopically. The foreign body could be seen faintly with the Potter-Bucky diaphragm on which a roentgenoscopic screen had been mounted and with the aid of a magnifying glass. The authors therefore made roentgenograms of the chest, using the Potter-Bucky diaphragm. By this method it was possible to get rid of the lung density and see the foreign body more clearly. They believe that roentgenograms should be made in this manner of every obscure and dense lung lesion before foreign bodies are excluded.

Small Radium Needles Versus Radon Implants.—Martin calls attention to the fact that small heavily filtered platinum radium element needles can be used in all parts of the body that are readily accessible or can be made accessible by surgery, as an efficient substitute for gold radon implants. Although the use of the needles requires hospitalization, they are more efficient than radon seeds. They produce no slough and only a slight reaction, and can be planted with the greatest accuracy. They cannot be lost or aspirated and do not remain in the tissues as foreign bodies. Recovery is rapid and the end-results are remarkably free from complications.

American Journal of Surgery, New York

13: 219-434 (Feb.) 1932

*Present Status of Treatment of Hirschsprung's Disease. F. W. Rankin and J. R. Learmonth, Rochester, Minn.—p. 219.
Will Bacteriophage Prove the Ideal Wound Treatment? F. H. Albee, New York.—p. 228.
Some Observations on Osteomyelitis. I. Cohn, New Orleans.—p. 237.
Further Consideration of Radium and Surgery in Cancer of Breast. J. T. Moore, Houston, Texas.—p. 248.
Lead-Antimony Ampules Containing Radon for Implantation in Cancer. F. E. Simpson and J. S. Thompson, Chicago.—p. 256.
Limitations of Histologic Grading of Tumors. F. W. Stewart, New York.—p. 258.
Pathology and Treatment of Malignant Neoplasms of Testis. I. Simons, New York.—p. 261.
Perforated Peptic Ulcer: Statistical and Roentgenologic Study of Eighty-Two Cases. H. J. Shelley, New York.—p. 277.
*Study of Bleeding Gastric and Duodenal Ulcers, with Plea for Early Surgical Intervention. S. H. Polayes, I. Gray and B. M. Friedman, Brooklyn.—p. 304.
Cholecystography Simultaneous with Opaque Meal. H. Fried, New York.—p. 312.
Biliobronchial Fistula: Report of First Recorded Case Demonstrated by Lipiodol. W. R. Laird and W. V. Wilkerson, Montgomery, W. Va.—p. 317.
Surgical Endothermy in Suprapubic Prostatectomy. P. W. Aschner, New York.—p. 321.
*Fractures of Spine. A. G. Davis, Erie, Pa.—p. 325.
Osteogenesis Imperfecta: Report of Nine Cases. P. C. Colonna, New York.—p. 336.
Improved Bone Clamp. P. A. Bendixen, Davenport, Iowa.—p. 341.
Improved Extension Apparatus for Skeletal Traction. P. A. Bendixen, Davenport, Iowa.—p. 343.
Clinical Management of Horseshoe Kidney: III. Conclusion. R. Gutierrez, New York.—p. 345.

Treatment of Hirschsprung's Disease.—Rankin and Learmonth present epitomes of eight cases of Hirschsprung's disease in which offensive measures were directed against the autonomic nervous system. These cases lend credence to the hypothesis that the condition is sometimes indubitably of neurogenic origin. Physiologic basis for sympathetic neurectomy in congenital megacolon lies in the theory that the interruption of these sympathetic nerves deprives the bowel of the "brake" on its activity, and that the tonus of the internal sphincter is, at the same time, diminshed, permitting the bowel, thus, without opposition, to rid itself of its content. Broadly speaking, the sympathetic nerves are thus "filling" nerves, their preponderant action diminishing intestinal contractility and allowing it, in a more or less quiescent state, to accumulate its content. Section of these nerves thus is directed toward the essential pathologic characteristic of the lesion: namely, dilatation and hypertrophy. The former condition permits accumulation of intestinal content and the latter is the result of some type of obstruction. Granted that ideas of the etiology of this condition are somewhat nebulous, the disease may still be attacked by relieving the three principal anatomic features, and attempting (1) to diminish the dilatation of the colon, (2) to overcome the excessive control by motor nerves, and (3) to relieve any opposition to expulsion of the content offered by the internal sphincter. The accomplishment of the first two considerations is brought about by division of the inferior mesenteric nerves, and the third by division of the presacral nerves. This particular type of operation accomplishes these results, as evidenced not only by the eight cases reported but by numerous other cases noted in the literature and, at the same time, does not endanger the function of any viscera by interruption of important efferent or afferent fibers. The mechanism for defecation is not affected by division of the inferior mesenteric nerves. In the eight cases reported, function was returned, tardily in some, it is true; nevertheless, neurectomy exerted a direct influence, and in all the obstipation and dilatation were overcome in varying degree. The safety of the operation and the desirability of its application in well selected cases, the authors believe, are established.

Bleeding Gastric and Duodenal Ulcers.—Polayes and his associates describe two cases of bleeding duodenal ulcer with postmortem observations. These cases seem to represent a distinct group pathologically and present certain characteristic features clinically. The distinguishing pathologic process consists of erosion of the ulcer into a large artery (in the two cases described the pancreaticoduodenal artery) with fibrosis of the vessel wall and perivascular tissue making spontaneous closure of the vessel impossible. The thrombus that forms in the artery is incompetent to withstand the arterial pressure to prevent bleeding. Owing to the nature of the underlying pathologic condition, fatal exsanguination may be prevented only by surgical intervention.

Fractures of Spine.—According to Davis, complete reduction of fresh crush fractures of the spine is possible when adequate hyperextension and fixation are accomplished early. Several adequate methods of hyperextension are now available, the particular method depending on the apparatus immediately available, and the special features of the case at hand. Restoration of vertebral contours and spinal alinement are essential to complete restoration of function. The vertebral centrum is capable of forming adequate weight-bearing callus. The double shell and rolling method reduces the labor and increases the safety and comfort of the patient considerably. Convalescence from crush fractures has been materially shortened. Hyperextension and shells are not only applicable but highly desirable in many cases of fracture dislocation of the spine with paralysis.

Annals of Surgery, Philadelphia

95: 161-320 (Feb.) 1932

*Acute Fractures of Pelvis: Eighty-One Cases. W. R. Gilmour, Philadelphia.—p. 161.
*Hemipelvectomy. K. Speed, Chicago.—p. 167.
Congenital Hypertrophic Pyloric Stenosis in Infancy. E. J. Donovan, New York.—p. 174.
*Infrapapillary Gastroduodenostomy by Mobilization with Retromesenteric Displacement of Duodenum and Jejunum. W. F. Rienhoff, Baltimore.—p. 183.
*Hemophilic Arthritis (Bleeder's Joints). J. A. Key, St. Louis.—p. 198.
Congenital Cysts and Fistulas of Neck. H. W. Meyer, New York.—p. 226.
Comparative Study of Antiseptics in Experimentally Produced Local Infections. E. Saleeby and M. J. Harkins, Philadelphia.—p. 249.

Fractures of Pelvis.—Gilmour considers that the heaviest responsibility in the management of cases of acute fracture of the pelvis is to recognize truly, and treat at the earliest moment effectively, the injuries to the internal viscera. A certain degree of judgment is necessary to determine the presence or absence of a rupture of the bladder and severe injury to the deep urethra, internal hemorrhage and rent intestine. In gross rupture of the bladder intraperitoneally, the bladder will be empty and nothing will be secured by catheter except possibly blood. In extraperitoneal ruptures of the bladder, bloody urine is generally present, but within a short time there is apt to be a definite presence of suprapubic or perineal extravasation of both blood and urine. In those cases in which there is a tear of the deep urethra, the passage of a catheter is either difficult or impossible and such instrumentation should be done with the greatest care, as it is possible to do great harm even in minor lacerations of the urethra. If intraperitoneal rupture of the bladder is suspected, immediate laparotomy should be performed as soon as the condition of the patient will allow; and if rupture is discovered, closure by suture should be done followed by intraperitoneal drainage. If the rupture proves to be extraperitoneal and in such a location as to allow suture,

closure is done; but if exposure is difficult, simple drainage of the bladder and prevesical space is sufficient, supplemented by drainage by the urethra. Those cases showing gross lesions of the urethra in men are treated by immediate perineal urethrotomy. If the urethra is completely divided an attempt is made at union, which, however, is not always possible; but if care should be taken, excellent results can be secured. As simple as these rules are, diagnosis is difficult. Rupture of the bladder, as a whole, is a comparatively rare incidence, but in collected series of fracture of the pelvis it occurs once in every seven cases.

Hemipelvectomy.—Speed uses the term hemipelvectomy in place of the more cumbersome description interilio-abdominal amputation. Two cases reported by him included amputation of the leg and were not simply local resection of part or half the pelvic ring. In surgical experience there is met an occasional instance of extensive disease of the proximal thigh extending toward the pelvis or into the pelvic bones, which if radically removed may promise the patient freedom from further extension and give prolongation of life. The author has met this condition at least six times, and in two of the cases he operated for radical removal or interilio-abdominal amputation. Both patients failed to survive. The indications for hemipelvectomy are as follows: 1. Extensive disease of the proximal thigh in which hip disarticulation will not suffice for complete eradication of the disease. This may be malignant or benign, (*a*) bone tumors involving the proximal end of the femur extending into the soft parts of the pelvic bones or hip joint and toward the pelvic cavity, (*b*) chronic bone infections in the same locality not yielding to surgical drainage, (*c*) malignant tumors or infections of the soft parts of the hip area extending into the bones of the pelvis or buttock tissues. 2. Malignant bone tumors of the ilium and tumors of the soft parts of the outer surface of the pelvis extending into the hip joint and femur or into the soft parts too extensively to yield to local resection of part of the bony pelvis but which require as well removal of the whole limb. 3. Extensive dissecting aneurysms of the femoral artery. 4. Crushing injuries of the hip region with gas infections. Certain rules should be abided by in choosing this radical procedure after the customary complete physical examination of the patient. If the indication is malignant (bone) tumor there must be a careful search for regional or distal metastases, especially in the lungs and thorax. The disease should not have penetrated through the iliacus muscle into the pelvis proper nor beyond the boundaries of the sacro-iliac and symphysis pubis joints. A thoroughly searching roentgenologic examination of the pelvis, femur, lower spine and chest is required to settle these points. The patient should be at least a reasonable risk for this most extensive operation and should understand the nature of it so that he is willing to take the chance of loss of life in exchange for the attempt at freedom from the disease or the pain he suffers. Every possible effort at preparation of the patient should be made. Some time may be taken for hyperalimentation. Body fluids should be increased to the maximum, short of cardiac embarrassment or edema; the heart should be digitalized. The author gives a brief description of the technic of hemipelvectomy.

Infrapapillary Gastroduodenostomy.—Rienhoff presents reasons why he considers that infrapapillary gastroduodenostomy is to be preferred to other types of gastro-enterostomy. He calls attention to the fact, however, that there is a small but definite percentage of cases in which this operation is not applicable. Mobilization of third (horizontal) and fourth (ascending) portions of the duodenum and the first portion of the jejunum with their retromesenteric displacement from the left to the right side is of value as well in surgical procedures for conditions other than chronic peptic ulcer. The author believes that every case of chronic ulceration of the stomach and duodenum should be considered individually from the surgical standpoint and it is only by the application of various operative procedures dependent on the anatomic and pathologic conditions which supervene and with regard for the physiologic effect of such various operative procedures on the stomach that the best results will be obtained. It is in the hope that this operative procedure may prove helpful that he calls it to the attention of those interested in the surgical treatment of ulcerative lesions of the stomach and duodenum.

Hemophilic Arthritis.—Key states that, in spite of the fact that the majority of hemophiliac patients who reach the age of puberty are subject to joint disturbances, hemophilic arthritis is a rather rare condition and most of the affected individuals know that they are bleeders and promptly inform the surgeon of this fact when any operative procedure is considered. Consequently, it does not occur to the average surgeon that he may some day open a hemophilic joint under an erroneous diagnosis; this, in spite of the facts that a hemophilic arthritis may closely resemble conditions for which operative intervention is indicated and that the literature contains several reports of surgical tragedies which resulted from operations on hemophilic joints under an erroneous diagnosis. Consequently, it is important that surgeons who operate on joints should know thoroughly the clinical picture of hemophilic arthritis. The author reports an unhappy experience of his own in which a fatality was narrowly averted; he also describes for the first time in English the clinical picture and pathology of hemophilic arthritis and makes certain additions to the knowledge of the subject which have resulted from the study of his case.

Archives of Internal Medicine, Chicago

49: 173-344 (Feb.) 1932

*Bacteriologic Investigations on Blood, Synovial Fluid and Subcutaneous Nodules in Rheumatoid (Chronic Infectious) Arthritis. M. H. Dawson, M. Olmstead and R. H. Boots, New York.—p. 173.
Basal Metabolism: I. Error of Basal Metabolism Determination and Normal Range of Basal Metabolism. R. L. Jenkins, Chicago.—p. 181.
*Id.: II. Basal Pulse Complex. R. L. Jenkins, Chicago.—p. 188.
*Range of Effective Iodine Dosage in Exophthalmic Goiter: IV. Effect on Basal Metabolism of Daily Administration of About 0.75 Mg. of Iodine. W. O. Thompson and Phebe K. Thompson, Chicago, and A. C. Cohen, Boston.—p. 199.
Cinchophen Poisoning: An Attempt to Produce Toxic Cirrhosis of Liver in Rats. H. S. Reichle, Cleveland.—p. 215.
*Blood Sugar in Man Following Rectal Administration of Dextrose. E. L. Scott and J. F. B. Zweighaft, New York.—p. 221.
*Viscerocardiac Reflexes: Experimental Study in Frogs and Dogs. H. G. Scott and A. C. Ivy, Chicago.—p. 226.
*Experimental Studies on Effect of Section of Vagus Nerve on Gastric Secretion. J. Friedenwald and M. Feldman, Baltimore.—p. 234.
Effect of Bronchial Asthma on Circulation. L. H. Criep, Pittsburgh.—p. 241.
Psittacosis: Results of Postmortem Examination in Case Including Studies of Spinal Cord. S. H. Polayes and M. Lederer, Brooklyn.—p. 253.
*Effect of Nitrites on Pain and Motility of Gastro-Intestinal Tract: I. Clinical Study. A. J. Beams, Cleveland.—p. 270.
Effect of Nitrites on Motility of Gastro-Intestinal Tract: II. Experimental Study. A. J. Beams and O. W. Barlow, Cleveland.—p. 276.
*Transient Ventricular Fibrillation: Study of Electrocardiograms Obtained from Patient with Auriculoventricular Dissociation and Recurrent Syncopal Attacks. S. P. Schwartz, New York.—p. 282.
Chronic Arthritis, with Especial Reference to Intravenous Vaccine Therapy. M. Wetherby and B. J. Clawson, Minneapolis.—p. 303.
*Thiocyanate Therapy in Hypertension: I. Observations on Its Toxic Effects. W. Goldring and H. Chasis, New York.—p. 321.
*Effect of Insulin Therapy on Pancreatic Enzymes in Malnutrition. C. W. Lueders and M. E. Watson, Philadelphia.—p. 330.

Rheumatoid Arthritis.—Using the technic of Cecil, Nicholls and Stainsby, Dawson and his associates carried out 105 blood cultures, the majority in duplicate, on eighty patients suffering from rheumatoid arthritis. As control material, thirty-one samples of blood from normal persons and sixteen samples of sterile autoclaved agar were subjected to similar manipulations. The blood cultures on patients suffering from rheumatoid arthritis failed to yield organisms that could be considered of etiologic significance. No significant difference was observed in the bacteria encountered in the blood cultures of patients and those observed during the culture of the control material under similar conditions. Streptococcus viridans was occasionally encountered during the culture of the control material as well as during the culture of specimens of the patients' blood. Aerobic and anaerobic cultures of twenty-three specimens of synovial fluid obtained from patients suffering from rheumatoid arthritis failed to yield organisms that could be considered of etiologic significance. Aerobic and anaerobic cultures of twelve subcutaneous nodules obtained from patients suffering from rheumatoid arthritis failed to yield organisms that could be considered of etiologic significance.

Basal Metabolism: II. Basal Pulse Complex.—Jenkins presents formulas and tables for the calculation of a basal pulse complex which is comparable with the basal metabolism of adults. He believes that this measure should be of value

as a procedure supplementary and confirmatory to basal metabolism determination in the diagnosis of metabolic diseases.

Effective Iodine Dosage in Exophthalmic Goiter.—The Thompsons and Cohen report that during the daily administration of about 0.75 mg. of iodine in the form of the compound solution to twelve unselected hospital patients with exophthalmic goiter, four showed a reduction in basal metabolism of from 11 to 19 points, six showed no change and two showed an increase. Whereas only 33 per cent of the patients showed a reduction in basal metabolism of 10 points or more during the daily administration of 0.75 mg., 50 per cent showed a reduction during the daily administration of 1.5 mg., 65 per cent during the daily administration of 3 mg., and 88 per cent during the daily administration of 6 mg. The administration of about 0.75 mg. a day caused an average reduction in basal metabolism of 4 points (from plus 39 to plus 35 per cent) as compared with 9 points (from plus 43 to plus 34 per cent) for 1.5 mg., 14 points (from plus 40 to plus 26 per cent) for 3 mg., and 27 points (from plus 36 to plus 19 per cent) for 6 mg. Whereas the minimum amount of iodine that will produce a maximum reduction in basal metabolism in most hospital patients with exophthalmic goiter in Boston is about 6 mg. a day, the smallest amount that will produce any effect is greater than 0.75 mg. a day in about two thirds of the cases and is probably not much less than 0.75 mg. a day in the other third. Within these limits of dosage there appears to be roughly a linear relationship between the percentage approach of the basal metabolism toward the normal level and the dose of iodine. It also appears that within these limits of dosage the reduction in basal metabolism is roughly proportional to the amount of iodine available for the storage of colloid. In five of forty-six patients who received from 0.75 to 3 mg. of iodine daily, the reaction of iodine appeared to be reversible; i. e., the basal metabolism rose during the administration of the small dose and fell during the immediate subsequent administration of a much larger dose. Iodine must be supplied to the thyroid at a certain minimum rate in order for the maximum effect to occur.

Blood Sugar in Man Following Rectal Administration of Dextrose.—Scott and Zweighaft were unable to demonstrate a rise in the blood sugar curve as a result of administering dextrose in retention enemas. The slight drop that their curves show may be due to a stimulation of pancreatic activity brought about by the absorption of a slight amount of dextrose, or, more probably, to chance variation. A variable and frequently considerable amount of dextrose administered by enema may be recovered from the stools after two and one half hours.

Viscerocardiac Reflexes.—Scott and Ivy describe experiments in which they confirmed the observations of Carlson and Luckhardt on the cardio-inhibitory effect of mechanical stimulation of the abdominal and pelvic viscera and on the reflex mechanism concerned in this effect. The gallbladder and biliary passages may be pinched and stretched without causing a change in the cardiac rhythm of frogs that show cardiac inhibition on mechanical stimulation of other abdominal viscera. The distention of the biliary passages in the frog usually does not cause a change in the heart, although either slight slowing or acceleration in rate occasionally may be observed. The incision of the gallbladder of the frog so that bile is spilled into the upper abdominal cavity without coming in contact with the heart causes cardiac inhibition, which is due to a reflex inhibition of the heart caused by the irritant action of bile on the peritoneum and not to the toxic action of bile on the heart. Bile introduced into the upper portion of the peritoneal cavity of the dog causes acceleration of the heart instead of inhibition.

Effect of Section of Vagus Nerve on Gastric Secretion.—In experiments on dogs, Friedenwald and Feldman noted that section of the left vagus nerve immediately below the diaphragm produces but a negligible change in the gastric secretion as compared with the normal. Following section of the anterior gastric branch of the left vagus nerve, the acidity may remain either normal or become markedly decreased. Section of the principal anterior branch of the left vagus is followed by slight decrease in the gastric acidity. After section of the left vagus in the neck, the secretion continues to be normal or there results a marked diminution in the acidity. Following section of the right vagus nerve, the observations vary but slightly from the normal. It is therefore evident that while at times changes in the gastric secretion occur owing to section of the vagus nerve, these are inconstant; there is likewise a general tendency for this secretion to return to normal when diminished as the result of this operation.

Effect of Nitrites on Pain and Motility of Gastro-Intestinal Tract.—Beams observed the effect of nitrites on abdominal pain arising from the gastro-intestinal tract in sixty patients. All the patients without organic lesions were relieved by the nitrites, whereas of thirty-three with organic lesions only twenty-one were relieved. Evidence is offered which indicates that the relief from pain by the nitrites is dependent on the cessation of peristalsis and the diminution in tone. The failure to obtain relief is probably due to the inability of the muscle to relax. Of 200 patients observed in fluoroscopic studies only ten failed to show cessation of peristalsis and diminution of tone in the stomach and intestine following the use of nitrites. The author has found nitrites to be a great aid in differentiating organic deformities from functional ones. As an antispasmodic, nitrites are to be preferred to atropine; but neither is wholly satisfactory.

Transient Ventricular Fibrillation.—Schwartz made a study of the electrocardiograms of a patient with auriculoventricular dissociation, who suffered from sixty-seven seizures of unconsciousness during a period of seven months while she was at a hospital. Each syncopal seizure was associated with periods of ventricular fibrillation. The longest recorded attack with spontaneous recovery lasted six minutes and two seconds. The alterations in the electrocardiograms preceding a syncopal seizure consisted of a gradual acceleration through steplike progressions of both the basic auricular and ventricular rates, the highest regular ventricular rate recorded being 65.2 beats per minute before ventricular fibrillation set in. Periods of reexcitation of from 4 to 11 beats at a time were observed to appear during the premonitory period, heralding the approach of a seizure of unconsciousness. The onset of every recorded seizure of ventricular fibrillation in this patient was initiated by a ventricular extrasystole which was always of the same character and arose from the same focus in the ventricle. The ventricular rates during the periods of ventricular fibrillation varied from a minimum of 250 to a maximum of 1,000 beats a minute. Spontaneous revival usually coincided with cessation of ventricular fibrillation. The mode of recovery was variable, but the restoration of the basic rhythm was preceded by an idioventricular rhythm, with a slightly irregular ventricular rate following, as a rule, a postundulatory pause. Periods of unconsciousness in patients with auriculoventricular dissociation are associated with transient seizures of ventricular fibrillation much more commonly than has been suspected heretofore. A clinical diagnosis of transient ventricular fibrillation may be suspected in such patients if, preceding a period of unconsciousness, the heart rate has been noted to increase above that of the usual basic rate.

Thiocyanate Therapy in Hypertension.—Goldring and Chasis present data on thirteen patients who showed toxic manifestations from thiocyanate, administered for therapeutic purposes. Two of these patients died as a result of thiocyanate poisoning. The incidence of toxic manifestations in this series was 17 per cent. The frequency and order of appearance of the various toxic manifestations are noted. A fall in blood pressure, the occurrence of toxic manifestations and death were found to be unrelated to the amount of thiocyanate administered or to the amount of residual drug in the body. Data are presented showing that in some patients there is little or no margin of safety between the toxic and therapeutically effective dose of thiocyanate.

Effect of Insulin Therapy on Pancreatic Enzymes in Malnutrition.—Lueders and Watson report that injections of insulin twice daily to the average total amount of 40 units produced in a selected group of eighteen patients with malnutrition a definite, measurable increase in the concentration of pancreatic ferments recovered from the duodenum during fasting. Accompanying this effect, there appeared in a number of the patients a return to a normal sequence of so-called

A, B, C bile fractions, in other words, the function of the biliary tract, together with external pancreatic functions, was improved. The methods employed in the estimation of enzyme concentration satisfy the essential laws of enzyme action, besides confining normal figures within narrow limits, and thus making a sharp division between high and low concentration, especially of trypsin and lipase. Tests for blood sugar tolerance are required to eliminate patients with hypoglycemia as unsafe for insulin therapy in malnutrition. Studies of the stool before and following insulin therapy gave results that showed a direct parallel between the more complete digestion and assimilation of food elements and the increased concentration of pancreatic ferments. The aforementioned observations appear to the authors as justifiable proof that the cause of the striking gain in weight in most of the eighteen patients receiving insulin therapy was due in part to the stimulating effect of insulin on external pancreatic secretion and bile and in part to a resulting normal digestion and assimilation of aliment.

Georgia Medical Association Journal, Atlanta

21: 43-84 (Feb.) 1932

Pruritus Ani. M. C. Pruitt, Atlanta.—p. 43.
Advantages and Disadvantages of Iopax (Uroselectan) in Urologic Diagnosis. E. G. Ballenger, O. F. Elder and H. F. McDonald, Atlanta.—p. 49.
Significance of Pus in Urine. W. A. Upchurch and W. E. Upchurch, Atlanta.—p. 51.
Treatment of Syphilis. W. B. Emery, Atlanta.—p. 56.
Laminectomy in Spinal Injuries. E. F. Fincher, Jr., Atlanta.—p. 62.
Cancer of Stomach. J. K. Quattlebaum, Savannah.—p. 64.
Transthoracic Esophageal Fistula Following Thoracotomy for Empyema: Case Report. C. K. Wall, Thomasville.—p. 71.

Journal of Immunology, Baltimore

22: 75-168 (Feb.) 1932

Forssman Antigens in Bacillus Paratyphosus B and Bacillus Dysenteriae Shiga. K. Landsteiner and P. Levine, New York.—p. 75.
Contribution to Study of Etiology of Serum Disease. H. R. Meyers, New York.—p. 83.
Improved Diluent for Diphtheria Toxin in Schick Test. B. White, W. E. Bunney and W. G. Malcolm.—p. 93.
Effect of Concentration and Various Tissue Constituents on Virulence of Poliomyelitis Virus. C. W. Jungeblut, New York.—p. 99.
Skin Reactions to Colon Bacillus and Its Toxic Products. B. Steinberg and Catherine Orth Wiltsie, Toledo, Ohio.—p. 109.
Diphtheria Antibodies Transmitted from Mother to Child. J. M. Neill, E. L. Gaspari, L. V. Richardson and J. Y. Sugg, Nashville, Tenn. —p. 117.
Method for Increasing and Prolonging Production of Antitoxins in Horses. G. Ramon and E. Lemétayer, Paris, France.—p. 125.
Anaphylaxis to Diphtheria Toxin: Passive Transfer Experiments. J. M. Neill, J. Y. Sugg and L. V. Richardson, Nashville, Tenn.—p. 131.

Medical Bull. Veterans' Adm., Washington, D. C.

8: 93-178 (Feb.) 1932

Significance of Schizoid Mechanisms in Manic-Depressive Syndrome. C. L. Carlisle.—p. 93.
Roentgenology as an Aid in Diagnosis and Localization of Brain Tumors. B. A. Moxness.—p. 99.
*Effects on Pneumococci of Sodium Dehydrocholate, a Bile-Salt Derivative. E. E. Ziegler.—p. 105.
*Arthritis of Spine. S. C. Woldenberg.—p. 113.
Tuberculous Arthritis. A. J. Bondurant.—p. 119.
Spinal Anesthesia. C. C. Keeler.—p. 126.
Diagnosis of Bronchiectasis. J. R. Brown.—p. 131.
Schizophrenia Following Parkinsonism. E. L. Whitmire.—p. 134.
Sleep and Sleeplessness. E. H. Green.—p. 140.
Value of Amalgam Fillings. A. J. Trainor.—p. 146.

Effects on Pneumococci of Sodium Dehydrocholate.—Ziegler reports that pneumococci of type I, grown on artificial mediums, were not dissolved by sodium dehydrocholate but were killed or rendered avirulent, so that they would not grow on artificial mediums or produce infection. Sodium dehydrocholate has an antipneumococcus action in the animal body. A mixture of sodium dehydrocholate and of pneumococci, when injected into rabbits, produces a degree of immunity to pneumococcus infection. Sodium dehydrocholate does not produce local tissue injury, as does sodium taurocholate and glycocholate.

Arthritis of Spine.—In a study of a large number of "spine cases," Woldenberg found that a certain percentage showed a peculiar type of arthritis. The usual symptoms noted were a dull aching pain, inability to lie down without great discomfort, marked rigidity of the muscles of the back, atrophy of some of the spinal muscles, difficulty in lying prone, obliteration of the normal lumbar curve, and marked limitation of all the motions of the spine. The roentgen observations consisted of distinct erosion or consolidation of the articular surface and decrease in the joint space (sometimes reaching the stage of total obliteration) with resulting ankylosis. The clinical symptoms and roentgenologic observations are regarded as evidences of a low-grade inflammatory process of one or more spinal joints. There is no essential difference between this condition and the true "typhoid spine." In view of the fact that all the patients in the series gave a history of never having had typhoid but had received repeated typhoid inoculation, a relation between the typhoid inoculation and the joint changes found was considered, but no evidence of sufficient positiveness has been produced to establish such a relation.

Northwest Medicine, Portland, Ore.

31: 49-98 (Feb.) 1932

Pathologic Study of Criteria Differentiating Chronic Gastric Ulcer, Cancer-on-Ulcer and Ulcerating Carcinoma of Stomach. W. H. Bueermann, Portland, Ore.—p. 49.
Statistical Study of Incidence of Cancer Deaths in State of Oregon from 1920 to 1929. J. E. Else, S. J. Newsom, B. Betzer and I. E. Bennett, Portland, Ore.—p. 54.
Intracranial Tumors. D. G. Dickerson, Seattle.—p. 58.
Head Injuries in Relation to Otology. A. W. Howe, Tacoma, Wash. —p. 65.
Syndactylizing Fingers Preliminary to Skin Grafting. A. G. Bettman, Portland, Ore.—p. 70.
When, Where, by Whom and Why Should Fractures Rarely be Treated Openly? A. C. Smith, Portland, Ore.—p. 72.
Fractures of Leg: Improvement on Delbet Method. J. H. Besson, Portland, Ore.—p. 74.
Spinal Anesthesia: Records and Conclusions. L. H. Maxson, Seattle —p. 79.
Variables in Subarachnoid Block as Applied to Gravity Control Technic. H. V. Larson, Seattle.—p. 81.
Pneumonoconiosis. J. W. Gullikson, Tacoma, Wash.—p. 84.
Evolution of Medical Practice. A. H. Peacock, Seattle.—p. 88.

Ohio State Medical Journal, Columbus

28: 153-232 (March) 1932

*Aluminum Hydroxide Treatment of Peptic Ulcer. I. H. Einsel and V. C. Rowland, Cleveland.—p. 173.
Management of Bladder Tumors. F. W. Harrah, Columbus.—p. 175.
Ocular Disorders Associated with Endocrines. M. Wiener, St. Louis. —p. 180.
Results of Glucose Tolerance Tests in Pregnant Women. J. J. Selman, Cleveland.—p. 184.
Physical Observations in Mental Disease. N. W. Kaiser, Toledo. —p. 189.
Preventive Treatment, Most Conservative Treatment. J. J. Sutter, Lima.—p. 193.

Aluminum Hydroxide Treatment of Peptic Ulcer.—Einsel and Rowland believe that aluminum hydroxide, in proper form, has possibilities of definite usefulness in the treatment of peptic ulcer and hyperacid states. It is free from the disadvantages of absorbable alkalis and the danger of alkalosis. Aluminum hydroxide powder is chemically neutral by titration with tenth normal hydrochloric acid and has little neutralizing power in the gastric secretion. A gelatinous aluminum hydroxide cream will neutralize ten times its volume of tenth normal hydrochloric acid and reduce gastric acidity better than free alkali. Blood analysis shows practically no absorption of aluminum hydroxide in a daily dosage of 32 Gm. and no alteration of the acid-base balance. There is no evidence of toxic action on the kidneys or other organs. Symptomatic relief was surprisingly prompt and continuous in 92 per cent of thirty-eight roentgen positive duodenal ulcer cases.

Oklahoma State Medical Assn. Journal, Muskogee

25: 51-94 (Feb.) 1932

Nervous Mother and Her Baby. C. M. Pounders, Oklahoma City. —p. 51.
Scurvy in Children. C. W. Arrendell, Ponca City.—p. 54.
Congenital Neurosyphilis with Many Convulsions: Particular Reference to Effect of Tryparsamide: Case Report. T. H. McCarley, McAlester. —p. 56.
Diagnosis of Enlarged Thymus. Fannie Lou Brittain, Oklahoma City. —p. 58.
Acute Appendicitis: Report of Six Hundred and Four Cases. J. L. Walker, Oklahoma City.—p. 61.
Appendicitis and Its Mortality. H. E. Hughes, Shawnee.—p. 64.
Appendicitis and the Public. M. E. Stout, Oklahoma City.—p. 66.
Chronic Pancreatitis. L. A. Riely, Oklahoma City.—p. 69.
Digestive Disorders Due to Lesions of Stomach and Duodenum. A. W. White, Oklahoma City.—p. 75.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Anaesthesia, Manchester

9: 57-96 (Jan.) 1932

*An Original Clinical Method of Giving Chloroform in Definite Percentage Dosage. S. T. Rowling.—p. 59.
*Ether Convulsions: Note as to Treatment. A. Daly.—p. 67.
*Resuscitation During Anesthesia and of the Newly Born. F. E. Shipway.—p. 69.

Original Clinical Method of Giving Chloroform.—Vaporized by a method described by Rowling, chloroform acts as the corrective and adjuvant of ether. It gives a rapid induction without discomfort, prevents ether irritation, and aids subsequent relaxation. It is available at any time during the administration and in any percentage dose up to a fool-proof limit, and can be cut out instantly. It is safe because the dosage is known and limited; because its administration is under complete control; because an excessive dose is impossible, and because it is administered mixed with oxygen and carbon dioxide and combined with ether. These factors render the administration of chloroform by this method a totally different thing to its administration in irregular unknown percentages on an open mask. The amount used is small—during the induction period it does not exceed half a drachm (2 Gm.) and when used during the maintenance period it does not exceed 2 drachms (8 Gm.) for a long administration. The fear of delayed chloroform poisoning need not be considered. During every administration there are two danger periods: initial overdose into the blood, and cumulative overdose into the tissues. By changing the anesthetic atmosphere to ether plus oxygen plus carbon dioxide during the first danger period, the danger of chloroform is eliminated; and by giving a minimal percentage of chloroform vapor plus ether plus oxygen plus carbon dioxide, the danger of a cumulative overdose into the tissues is again eliminated. It is during the early induction period that the vaporized chloroform is of the greatest benefit; it is also available later, if desired, the chief indication being when ether is not taken well: when the patient is rigid, or when the patient is bronchitic and a minimal percentage of ether must be given. The method has had an exhaustive clinical trial and is found to be simple, efficient and safe.

Ether Convulsions.—Daly reports a case of ether convulsions in a girl, aged 7, following appendectomy. Just as the peritoneum was about to be closed, i. e., after thirty minutes' anesthesia, clonic convulsions started in the face and jaws and spread rapidly to the rest of the body. The anesthetic was at once stopped and carbon dioxide and oxygen were given from a bag through valves, in order to hasten the elimination of ether; but the convulsions continued and the abdomen was closed with difficulty between spasms. As the child looked hot and her face was flushed and congested, the head of the table was raised, with the idea of relieving any congestion of the brain. The convulsions at once ceased and did not recur. The child was returned to bed and the head was kept well up for some hours. There were no further spasms, and, beyond the fact that the pulse next day was 140 and remained above 100 for three days, recovery was uneventful. The author believes that, whatever may be the cause of the convulsions, their treatment by raising the head is certainly worth a trial.

Resuscitation During Anesthesia.—According to Shipway, there are many causes of respiratory and circulatory paralysis. In general, the use of carbon dioxide and oxygen both for their prevention and, combined with artificial respiration, for their treatment is to be encouraged. Partial inversion is of use in the absence of asphyxia; it should be adopted at once for the treatment of primary circulatory syncope. If the action of the heart cannot be restored by these means, puncture of the auricle, followed if necessary by direct massage, should be performed. If the abdomen is already open, subdiaphragmatic massage may be carried out; if not successful within two minutes, direct massage must be undertaken. Artificial respiration must be maintained throughout until natural breathing is restored. The time factor is all important. Circulation must be restored within five minutes of the time of arrest. During all attempts at resuscitation, the body temperature of the patient must be maintained.

British J. Dermatology and Syphilis, London

44: 57-116 (Feb.) 1932

Hyperglycemia and Skin Diseases. G. A. Rost.—p. 57.
Some Observations on Deposition of Gold in Skin. J. E. M. Wigley.—p. 69.
Widely Distributed Superficial Telangiectatic Nevus (Capillary Hemangiectatic Nevus) Associated with Areas of Nevus Anemicus: Indications that a Portion of Cerebral Meninges Is Similarly Involved: Case. F. P. Weber and K. E. Harris.—p. 77.

British Medical Journal, London

1: 223-268 (Feb. 6) 1932

Endocrines and Some Associated Psychoneuroses. W. L. Brown.—p. 223.
Bladder Healing After Suprapubic Cystotomy Especially in Prostatectomy. J. B. Macalpine.—p. 226.
*Cystic Dilatation of Common Bile Duct: Report of Case with Unusual Features. J. H. Saint.—p. 230.
*Adenomatous Papilloma of Duodenum: Case. A. Fowler.—p. 233.
Atrophic Coarse Cirrhosis of Liver in Congenital Syphilitic. K. C. L. Paddle.—p. 233.
Investigation of Renal Case. F. H. Scotson.—p. 235.

Cystic Dilatation of Common Bile Duct.—Saint believes that in cystic dilatation of the common bile duct the treatment of choice is the performance of an anastomosis through which bile may pass easily into the upper gastro-intestinal tract and so reduce stasis and lessen the tendency to cholangeitis. The results in patients treated by this method of primary anastomosis have been much more successful than those in which other types of treatment have been employed. The anastomosis most commonly advocated is a choledochoduodenostomy, but a cholecystogastrostomy appears to be equally efficacious. Other operative procedures, such as aspiration (which obviously can be only a temporary measure) and marsupialization of the cyst, have not proved satisfactory. External drainage of the cyst as the sole procedure has not met with much success, death resulting in some cases from peritonitis or hemorrhage, while in those patients who have lived, a biliary fistula has sometimes persisted for months, only for its eventual closure to be followed by a recurrence of symptoms. In several instances, however, the performance of secondary anastomosis between the cyst and the duodenum or jejunum following a preliminary drainage has proved satisfactory. In a case reported by the author it was intended that a choledochoduodenostomy should be performed at an early date after the patient had recovered fully from the effects of her acute illness. The patient died suddenly from causes apparently unassociated with the condition for which she had been operated on.

Adenomatous Papilloma of Duodenum.—In a case of adenomatous papilloma of the duodenum reported by Fowler, as in similar cases already recorded, great difficulty was experienced in establishing a diagnosis. The clinical features strongly suggested either a prepyloric or a duodenal ulcer. A mild duodenitis, resulting from the continued mechanical irritation of the duodenum by the tumor, might account for the symptoms. Persistent melena was a constant feature. With the tumor completely filling the lumen of the intestine and having a pedicle 3 inches (7.6 cm.) in length, it is surprising that no obstructive symptoms arose. The roentgen appearances did not conform to those in cases already reported. A curious appearance of the distended jejunum was misleading and may have prevented the making of a correct diagnosis. These papillomas do not show any tendency to malignant degeneration.

1: 269-316 (Feb. 13) 1932

*Intramuscular Liver Extract Therapy in Treatment of Pernicious Anemia. L. S. P. Davidson.—p. 269.
Resistant Sprue Anemia Yielding to Intravenous Liver Extract. L. Rogers and W. E. Cooke.—p. 272.
*Intravenous Liver Treatment of Pernicious Anemia. I. Billig, W. N. West-Watson and C. J. Young.—p. 273.
Radiographic Dissection of Chronic Rheumatic Arthritis. S. G. Scott.—p. 275.
Foreign Bodies in Esophagus. F. H. Diggle.—p. 277.
*Observations on State of Circulation After an Endurance Test. E. B. Gunson and T. H. Pettit.—p. 280.
Thrombophlebitis Migrans: Case. H. Barber.—p. 281.
*Treatment of Erysipelas by Injections of Milk. I. Abd el Sayed.—p. 281.
Chorea in Three Children Occupying Same Bedroom. R. G. Waller.—p. 282.

Intramuscular Liver Extract Therapy in Pernicious Anemia.—Davidson has found Gänsslen's liver extract for intramuscular injection to be highly potent. Its effectiveness is about a hundred times that of raw liver given by the mouth.

No undesirable local or general manifestations occurred as a result of its injection. Intramuscular liver extract therapy is of particular value in cases of pernicious anemia in which the patients are critically ill, with marked nausea and vomiting. The necessity for blood transfusion is reduced to a minimum if adequate quantities of liver extract are given intramuscularly. In the so-called liver-resistant cases of pernicious anemia the patients should be treated by intramuscular injection of liver extract. In patients in the remission stage the fortnightly injection of liver extract enables the maintenance dose of liver to be reduced to limits that can be easily tolerated even by persons who have an active dislike for the consumption of this organ. The author discusses the importance of maintaining a normal blood level in such patients for the prevention and treatment of subacute combined degeneration of the cord.

Intravenous Liver Treatment of Pernicious Anemia.—Billig and his associates describe two cases of pernicious anemia in which the patients were treated intravenously with liver extract. Both responded rapidly, although one had previously failed to respond to oral treatment owing to vomiting, while the other had sepsis as a complication.

Circulation After an Endurance Test.—Gunson and Pettit report the observations they made in the case of a woman swimmer after an endurance swim of forty-three hours in salt water baths, at a temperature of 75 F. Besides an alteration in the electrocardiogram, the only change observed was in the blood pressure and the blanching of the hands, which presented the appearance of a stage in Raynaud's disease. This symptom, previously experienced, and the associated numbness, caused the swimmer some concern. The marked rise in diastolic pressure from 72 to 100 mm., with the consequent development of a small pulse pressure (18 mm.), and an increase in the heart rate of only eight beats per minute, would appear to have an important bearing on the failure of the circulation in the hands and fingers. The blood pressure change is of particular interest in view of the fact that the heart showed no sign of embarrassment. It is interpreted as being reflex in nature, arising from the state of nerve fatigue. This would indicate that in the authors' case, in which a healthy circulatory system was subjected to an endurance test to the point of fatigue, a primary failure of the peripheral circulation had occurred in the hands. It is suggested that a healthy swimmer's capacity for an extended endurance swim in tepid water may depend on the integrity of the peripheral circulation in the first instance, and that a healthy myocardium is not embarrassed at this stage.

Treatment of Erysipelas by Injections of Milk.—Abd el Sayed calls attention to the fact that subcutaneous or intramuscular injections of milk are known to produce a general reaction and are thought to have considerable antiinfective value. It seemed possible, therefore, that intradermal injections of milk near the site of infection in erysipelas, by producing a local reaction, might form a barrier to the further spread of the inflammation. The author tried them in thirteen cases. In most cases a spreading and a receding margin was found, the distribution being usually most rapid in the direction of the lymphatic supply. In some cases the spread was general. The value of the method of treatment is based on the results of ten cases of erysipelas on parts of the body other than the head and on three cases of erysipelas of the face. Details of these cases are given. Fresh milk is kept at the boiling point for four minutes. It is then cooled to body temperature and strained through sterilized gauze. From 5 to 15 cc. is injected as far as possible intradermally, the remainder subcutaneously. A long fine needle is introduced, parallel with the spreading margin and about 1½ inches from it, the milk being injected at intervals along the line. If the injection is successful, the skin round the site of the injection is blanched, hyperemia following in about five minutes. The spreading margin is first found by marking the skin round the affected area and examining it from two to four hours later. Injection at the receding edge is unnecessary. In erysipelas of the face, intradermal injection is impracticable; it is replaced by intramuscular injections with a view to the production of a general reaction. In nine of the first ten cases the infection did not spread beyond the line of intradermal injection. In one in which one injection was subcutaneous, the infection spread about 2 inches beyond that site of injection.

Indian Medical Gazette, Calcutta

67: 1-60 (Jan.) 1932

Interpretation of Wassermann Results in India. R. B. Lloyd.—p. 1.
Indian Chenopodium. R. N. Chopra and B. Mukherji.—p. 5.
Alepol in Leprosy. B. B. Dikshit.—p. 7.
Relapse of Active Signs in "Burnt-Out" Cases of Leprosy. A. Roy.—p. 12.
An Epidemic of Jaundice in Alipuram Jail, Bellary, from January to July, 1931. H. T. Ince.—p. 13.
Routine Combined Method of "Widal Reaction and Clot Culture" for Diagnosis of Enteric Infections. D. W. Soman.—p. 15.
Plea for Use of Suction. S. S. Banker.—p. 18.

Irish Journal of Medical Science, Dublin

No. **73:** 1-48 (Jan.) 1932

Some Scandinavian Clinics. A. Chance.—p. 1.
Observations on a Case of Pulsus Trigeminus.. P. T. O'Farrell.—p. 11.
Hyperemesis Gravidarum. J. McGrath.—p. 17.
Experiences with Percaine. R. W. Shaw.—p. 23.
Observations on Sedimentation Test. A. R. Halpenny.—p. 30.
Cystoscopic Surgery of Ureter. T. Millin.—p. 36.
Notes on a Case of Leukanemia. J. McGrath.—p. 39.

Medical Journal of Australia, Sydney

1: 35-68 (Jan. 9) 1932

Obstetric Observations in New Zealand. R. M. Allan.—p. 35.
Spinal Anesthesia: Clinical Experiences in Four Hundred and Thirty Cases, and a Technic to Eliminate Postoperative Headache. A. J. Kennedy.—p. 40.
Noise, a Nuisance Dangerous or Injurious to Health. J. S. Purdy.—p. 46.
Effects of Noise on Nervous System. C. Warren.—p. 49.
Psychologic Effects of Noise. D. Fraser.—p. 50.

1: 111-144 (Jan. 23) 1932

Treatment of Insanity by the General Practitioner. J. K. Adey.—p. 111.
Disabilities of Knee Joint. L. O. Betts.—p. 116.
Carbon Dioxide: Some Observations on Its Use and Abuse During Anesthesia. D. G. Renton.—p. 121.
Detoxicating Properties of Sodium Thiosulphate in "Avertin" Intoxication: An Experimental Study. A. Bolliger.—p. 125.
Diabetic Coma. E. Downie.—p. 131.

1: 145-180 (Jan. 30) 1932

Treatment of Insanity by the General Practitioner. J. K. Adey.—p. 145.
Bacillary Disease of Blue-Tongued Lizard (Tiliqua Scincoides). R. A. Willis.—p. 149.
Injuries and Diseases in Australia Attributable to Animals (Other Than Insects). J. B. Cleland.—p. 157.

1: 181-214 (Feb. 6) 1932

Surgery in Australia: Some Contrasts and Comparisons. H. Newland.—p. 181.
*Consideration of Achlorhydria: Review of One Hundred Cases. L. J. J. Nye and C. H. Sippe.—p. 189.
Evolution of Public Health Administration in Australia. J. H. L. Cumpston.—p. 194.
Accommodation in Monotremes and Marsupials. J. Barrett.—p. 198.

Consideration of Achlorhydria.—Nye and Sippe emphasize the importance of distinguishing between a complete lack of acid secretion and ferment—true achylia gastrica—and simple achlorhydria, in which the secreting glands are functioning normally but in which the acid is prevented from flowing into the stomach or is neutralized by alkaline fluids. In order to differentiate between these two conditions, many advances have been made on the ordinary gruel meal. Histamine is a powerful gastric secretogogue and when injected subcutaneously is found to produce free hydrochloric acid within thirty minutes if any gland structure capable of secreting remains. It is now the authors' practice to give an injection of 0.05 mg. of histamine when the test shows no free hydrochloric acid up to the sixth or one and a half hour specimen. When true achylia is not present, there is a sharp rise in the curve. It must be remembered that histamine may cause a severe reaction if used in large doses, but with this small dose the patient experiences merely a momentary flush, which passes off quickly. The intramuscular injection of neutral red (4 cc. of a 1 per cent solution) acts similarly. The "Bovril" broth meal and the alcohol meals, owing to the stimulating properties of the purine bases and of alcohol, are also an improvement on the gruel meal.

Annales de Médecine, Paris

31: 1-199 (Jan.) 1932

Acute Necrotic Myelitis. G. Marinesco and S. Draganesco.—p. 5.
Spinal Cord Origin of Certain Retractions of Palmar Aponeurosis. G. Roussy, G. Lévy and C. Rosenrauch.—p. 21.
Symmetrical Atrophic Cerebral Necrosis and Encephalic Forms of Symmetrical Necrotic Ischemia of Extremities. G. Guillian and I. Bertrand.—p. 35.
*Acute Disseminated Encephalomyelitis in Children. L. Van Bogaert.—p. 59.
Plantar Imprints in Study of Static Tonus. T. Alajouanine and M. Gopcevich.—p. 80.
Leukocytosis in Certain Hypophyseal Syndromes. G. Guillain, P. Lechelle and R. Garcin.—p. 100.
Meningeal Permeability to Absorption. Riser and Planques.—p. 115.
Heart in Atrophic Myotonia. G. Guillain and L. Rouquès.—p. 158.
Atrophic Myotonia and Parathyroid Insufficiency. L. Rouquès.—p. 167.
Lesions in Atrophic Myotonia. G. Guillain, I. Bertrand and L. Rouquès.—p. 180.

Acute Disseminated Encephalomyelitis in Children.—Van Bogaert states that for about five years there have been observed in various parts of Europe isolated cases and at times groups of infections of the nervous system which semeiologically belong between epidemic encephalitis and various forms of multiple sclerosis. The encephalitic syndromes present in the child of any age were similar to those present in the adult and were characterized by a typical temperature curve and sequelae similar to those that occur in multiple sclerosis. The author realizes that true infantile multiple sclerosis and sclerosis with prolonged fever are infrequent; on the other hand there has been recently noted an increase in the instances of encephalitis occurring during exanthems and vaccination. Six representative cases out of a group of fifteen are discussed. The author concludes that there are some cases of acute disseminated encephalomyelitis which may be only central reactions in the course of general, often common, infections (chickenpox, measles) but in which part of the symptoms may be absent and prevent recognition. Other instances of encephalitis may be neurotropic localizations coming unexpectedly during an artificial disturbance in immunization, so that the infection appears to have an affinity for the brain. A few cases can be classified as multiple sclerosis, except that the rapidity of evolution sets them apart from the usual form. Three of the patients died (one after four months, the others after ten and twelve days, respectively). The first is more characteristic of acute multiple sclerosis (fatality seldom occurs before fifteen days). The rest of the patients experienced a rapid recovery hardly characteristic of multiple sclerosis. The frequency of the presence of fever is contrasted with the absence of fever at the onset of the classic forms of multiple sclerosis. The author states that from the standpoint of semeiology, evolution and sequelae his cases seem to be much more closely related to the acute disseminated encephalomyelitis that is encountered during the course of exanthems.

Archives des Maladies de l'Appareil Digestif, etc., Paris

22: 1-120 (Jan.) 1932

Roentgen, Macroscopic and Histologic Study of Folds of Gastric Mucosa. P. Duval, J.-C. Roux, H. Béclére and F. Moutier.—p. 1.
*Pseudosplenomegalic Form of Cancer of Pancreas. E. Benhamou and J. Montpellier.—p. 21.
*Pathogenesis and Treatment of Urticaria. I. Daniel.—p. 30.
*Histamine in Treatment of Anemia and Gastric Achylia. H. G. Mogena, J. Garcia Orgoyen and A. L. Fernandez.—p. 38.

Pseudosplenomegalic Form of Cancer of Pancreas.—Benhamou and Montpellier discuss a case history in which there were no marked symptoms except a hypersthenic type of dyspepsia, a long time relieved by alkalis, and a tumor that developed rapidly in the abdominal region. During development, the tumor did not produce marked changes in the general condition of health; an irregular intermittent fever with chills and sweats seemed the logical accompaniment of the condition, which simulated splenomegaly. Quinine therapy did not help. Roentgenograms were taken ten minutes, a half hour and an hour after the ingestion of a barium meal. The first film (the patient in an upright position) showed no demarcation between the pylorus and the duodenum; the barium had passed the incontinent pylorus and lodged in a large duodenal ring which outlined the tumor of the pancreas. The second film (the patient lying face down) showed the duodenal ring faintly enclosing the tumor; in front of the tumor, the barium was present in the form of small loops. The third film (the patient still face down) showed a fine opaque recrudescence which encircled the tumor, but the ascending colon (to the right of the tumor) was still very dark. The author believes these aspects of the duodenum caused by pancreatic tumors are pathognomonic and cannot be overestimated in the semeiology. The tumor is not one of the head of the pancreas but has a development such as, in every sense, to unfold, open and enlarge the duodenal ring. Histologically, it is an undifferentiated epithelioma; the cellular and structural characters seem to point to a particularly active fertility of young tissue, and this may explain the rapidly invading growth of the tumor, clinically.

Pathogenesis and Treatment of Urticaria.—Daniel calls attention to the frequent appearance of urticaria, particularly alimentary or essential urticaria, in individuals with chronic or latent disturbance in the biliary function. These disturbances are often unrecognized. Concomitant with the urticaria there are symptoms of bradycardia, a decreased arterial tension, digestive disturbances, and a positive Hay's test. Believing that the urticaria is due to a retention of bile salts and perhaps other unknown substances which are normally eliminated by the biliary routes, the author undertook medication with sodium dehydrocholate, which is choleretic and a cholagogue at the same time. A review of the literature and a discussion of the results in three personal observations led the author to assert that in the treatment of urticaria, bile salts, such as sodium dehydrocholate, give good, prompt and permanent results.

Histamine in Treatment of Anemia and Gastric Achylia.—Mogena and his co-workers believe that the favorable results obtained by the use of other organs than liver in the study of blood regeneration are due to the presence of histamine in varying amounts in all these organs. In accordance with the experiences of other workers, the authors administered by mouth, to various patients without recent hemorrhage, from 10 to 20 mg. of histamine hydrochloride (in two doses); and in analyses made every eight days, they noted a considerable increase in the red cells, the increase in several instances reaching a million cells. These patients also recovered their appetites and improved in health generally. The authors made some experiments on rabbits and were able to corroborate their previous deductions. They had no occasion to treat patients with pernicious anemia, and their experiences, therefore, are limited to the treatment of secondary anemia. The same observations were made in patients with gastric achylia, which the authors believe is one of the provocative causes of pernicious anemia. Histamine not only stimulates the bone marrow but also influences the hydrochloric acid secretion. To patients with noncancerous achylia, injections of from 0.3 to 0.5 mg. of histamine (in two doses, if possible before the noon and the evening meal) were given subcutaneously; and in a few instances, doses of from 10 to 20 mg. were given by mouth (previous to the main meal). They obtained good results in the treatment of achylia with colitis, and nontuberculous diarrhea with achylia (tuberculous diarrhea with gastric colitis did not respond to this treatment). Good results were also obtained in asthenic inappetent patients with gastric hypotony. The small doses of histamine did not prove toxic.

Nourrisson, Paris

Vol. **20:** 1-72 (Jan.) 1932

Early Mortality of the New-Born. A. Couvelaire, P. Lereboullet and P. Lacomme.—p. 1.
Blood Platelets in the New-Born and Nurslings. E. Benhamou and A. Nouchy.—p. 16.
*Fetal Peritonitis Due to Bacillus Faecalis-Alcaligenes. H. Slobosiano.—p. 26.
Peculiar Gluteal Erythema in Nurslings. M. Lavergne.—p. 32.
*Ulcer of Pylorus in Nursling Aged 8 Months. G. Blechmann, R. A. Gutmann and Nemours-Auguste.—p. 34.

Fetal Peritonitis Due to Bacillus Faecalis-Alcaligenes.—Slobosiano asserts that Bacillus faecalis-alcaligenes, a saprophyte of the intestine, can sometimes become pathogenic. His own observation consists of two cases of congenital fetal peritonitis in twins. The mother had no history of disease during or after confinement; the amniotic fluid appeared normal; culture of the urine was negative; and the Bordet-Wassermann reactions of the blood of both the mother and one infant were also negative. The cultures of the peritoneal fluids of both

infants were positive for Bacillus faecalis-alcaligenes. One infant died thirty-six hours, the other six days, after birth. The disturbances in both infants were characterized by vomiting, retention of meconium, icterus, slight hypothermia, and generalized sclerema. Examination at necropsy demonstrated the presence of a fibrinopurulent peritonitis, an atresia of the ileum 5 cm. above the ileocecal valve, and a microcolon. There were also infarcts in the lungs and pancreas. Microscopically, there was a reduction of the muscularis mucosae above the atresia, an hypertrophy of the muscular coat, and a sclerous peritonitis. In the large intestine there was an atrophy of the mucosa, an hypertrophy of the muscularis mucosae and a fibrous transformation of the muscular coats, especially of the longitudinal muscles. The infarcts of the lungs and pancreas were accompanied by vascular thrombosis. There were no specific lesions and no enteritis or intestinal ulcerations.

Ulcer of Pylorus in Nursling Aged 8 Months.—Blechmann and his co-workers present an observation in which a child vomiting from the day of birth had been kept on a deficient dietary regimen and who vomited digested blood from the eighth until the eighteenth month and presented melena on several occasions. Roentgen examination revealed an ulceration at the level of the pylorus. Four roentgenograms in series demonstrated a round spot the size of a millet seed on one surface of the pyloric region, close to the pylorus. The spot resembled the image of the niche that is seen in the pyloric region of adults. The condition is more easily localized by roentgenography than by operation. The authors cannot find a similar instance in the literature and cannot explain the underlying etiologic factors.

Policlinico, Rome

39: 1-64 (Jan. 15) 1932. Surgical Section

Open Surgical Treatment of Fractures of Neck of Humerus. I. Barcaroli.—p. 1.
*Effects of Exertion on Varices. S. Diez.—p. 20.
*Intermittent Gastric Volvulus. M. Fanucci.—p. 35.
Absorption of Colon Bacilli by Normal Peritoneum. G. Gucci.—p. 44.
Absorption of Colon Bacilli by Peritoneum in Various Stages of Inflammation and in Presence of Transudates. G. Gucci.—p. 51.
*Gas Gangrene Resulting from Hypodermic Injections. U. Polerà.—p. 57.

Effects of Exertion on Varices.—Diez considers all the internal and external factors of the venous system that may cause a variation of the venous pressure and inquires especially into the action exerted by physical forces on the latter. The results of the research carried out, thus far, to establish the value of the venous pressure in the lower and the upper limbs, in their various positions, not only in the normal state but also during exertion, show that exertion causes only slight increases of pressure, which are transitory and not sufficient to cause the development of varices. These results are confirmed by the clinical observations of the author, from which it was evident that varices are not more frequent in subjects who follow occupations that expose them to continued and repeated exertion, and that in the school children that he examined the percentage of varices was just as high as in adults. Exertion, therefore, appears only to reveal preexisting varices and to aggravate the varices already developed.

Intermittent Gastric Volvulus.—Fanucci, in giving the history of a case of intermittent gastric volvulus, diagnosed roentgenologically and which later came to operation, takes occasion to discuss the subject briefly. Concerning the classification he admits that he is inclined to follow the clinical order as corresponding more closely to the realities of general practice. A definite diagnosis must be based on roentgenologic examination; but a careful examination of the case history may in some instances give rise to the suspicion that an intermittent volvulus is present.

Gas Gangrene Resulting from Hypodermic Injections.—Polerà brings out that bronchial asthma constitutes an excellent terrain for the development of the causative agents of gas gangrene. Epinephrine does not exert a selective action on the development of Bacillus perfringens and other similar organisms; but it aids in their development if its vasoconstrictive action is exerted in an asthmatic terrain. If, following a hypodermic or intramuscular injection, pain develops in an extensive area and locally edema is observed, which becomes more and more significant, one may suspect gas gangrene and the patient should be sent at once to the roentgenologist. If the diagnosis is further strengthened either roentgenologically or by the presence of subcutaneous emphysema, before the arrival of the surgeon, the heart should be strengthened and vigorous treatment with antigangrene serum should be applied. The prognosis of gas gangrene due to hypodermic injections depends directly on the rapidity of the diagnosis and the promptness with which the treatment is instituted. The treatment is solely surgical. Perhaps no patient would die from gas gangrene due to hypodermic injections if the physician, when he sterilizes the instruments for the injection, would sterilize, at the same time, the instruments needed for an operative intervention.

Rinascenza Medica, Naples

9: 25-52 (Jan. 15) 1932

Anatomic Transformations Induced by Phrenic Avulsion in the Tuberculous Lung. L. Riccitelli.—p. 30.
Colloidal Therapy in Erysipelas. S. Zanetti.—p. 32.
Early Syphilis with Manifestations Resistant to Mercury and to Heavy Doses of Arsenicals. A. Conte Ardias.—p. 35.
*Intra-Uterine and Extra-Uterine Bigeminal Pregnancy. V. Crimeni.—p. 42.

Intra-Uterine and Extra-Uterine Bigeminal Pregnancy.—Crimeni reports the history of a rare case of combined intrauterine and extra-uterine pregnancy that he had occasion to observe in his private practice, since it is instructive from the standpoint of the difficulty of the diagnosis. The patient, aged 32, a primipara, had always enjoyed good health, having never had a miscarriage. In a bimanual examination, a hard, cystic fixed mass, painful on palpation, was located at the level of the space of Douglas. On palpation of the mass by the rectal route, it seemed to be adherent to the floor of the pelvis and appeared less hard than when examined by the vaginal route. On reexamining the mass by the vaginal route, the author discovered a sulcus that divided two separate masses. He expressed the conviction that an extra-uterine pregnancy was probably involved, but his opinion was not shared by the attending physician, who, having attended the patient on other occasions, stated that he found all the indications of cyst in process of suppuration. To avoid further loss of time, the author suggested a laparotomy, which was immediately decided on. The amount of acetone in the urine furnished a frankly pathognomonic sign of tubal pregnancy. Under morphine-ether anesthesia, a median laparotomy incision was made extending to a point above the umbilical cicatrix. On opening the peritoneum, which was much thickened, the author discovered a large tumor of dark color, with friable walls, which bled easily. The cecum and ascending colon were closely adherent, for a considerable distance, to the tumor mass, which had a large pedicle with several turns of torsion. The tumor mass having been removed, the size of the uterus indicated that the pregnancy was in the fifth month. The fetal parts could be easily palpated but no fetal movements could be noted. The abdominal cavity was carefully cleansed by means of ether lavage, and the abdomen was closed. During the night the patient suffered great pain, doubtless owing to uterine contractions, and lost considerable blood. The day following, a five months old fetus was expelled, completely entangled in the sac. The patient was dismissed from the hospital, fully recovered, twenty days later. When the tumor was opened, about 2,000 cc. of dark red fluid escaped—a veritable tubal hematoma, with an embryo surrounded by an amniotic cavity.

Medicina Ibera, Madrid

1: 205-236 (Feb. 13) 1932

*Acetonuria Complicated by Meningeal Symptoms in Children. J. Morales Diaz.—p. 205.
Chronic Fibrinous Bronchitis: Case. Ubeda Saráchaga.—p. 207.

Acetonuria Complicated by Meningeal Symptoms in Children.—Morales Diaz concludes from his observations in thirty-one acetonuric children, whose ages ranged from 1 to 13 years, that the development of nervous attacks, either associated or not associated with vomiting, is a symptom of acetonuria, even more frequent than acetonuric vomiting. In all cases observed, nutritional disturbances preceded the appearance of the acetonuric syndrome. That either congenital or acquired predisposing constitutional factors are involved in the development of the syndrome is proved by the presence of

familial cholemia, by the examination of the patient and by the results of the van den Bergh test, as made directly with the patient's blood. The presence of acidosis is not a constant observation. The fermentation of the carbohydrates in a given segment of the intestine (probably in the upper segment of the small intestine), favors the formation of acetone and ketogenic bodies, which, when absorbed by the organism from the intestine to be eliminated through the kidneys, in the urine, provokes a reflex irritation on the nervous centers. The irritation of the nervous centers causes the meningeal reaction, which may be serious and even fatal. The determination of the acetone content in the urine, the bile and the blood should be made as a routine in all cases of nervous attacks in children, at the first observation of the patient, and, if possible, immediately after having obtained the clinical history of the patient.

Prensa Médica Argentina, Buenos Aires

18: 1077-1128 (Jan. 20) 1932

Hallucination and Perception. G. Bosch, E. Mouchet and J. L. Alberti. —p. 1077.
Fistulas Following Rupture of Appendicular Abscesses. G. Bosh Arana and O. J. Ratto.—p. 1079.
*Sodium Thiosulphate in Treatment of Potassium Cyanide Poisoning. A. Buzzo.—p. 1084.
Cholesterol Content of Skin of Fetus and Infant Following Solar Irradiation. A. H. Roffo.—p. 1091.
Multiple Tumors in Same Patient. G. Orosco.—p. 1095.
Hemiresection of Elbow for Dislocation Complicated by Osteoma of Lower End of Humerus: Case. J. C. Bidart Malbran.—p. 1102.
Spectrophotometric Method for Determination of Hydrogen Ion Concentration in Stained or Turbid Fluids. C. L. Ducco.—p. 1107.

Sodium Thiosulphate in Treatment of Potassium Cyanide Poisoning.—Buzzo states that the intravenous injection of 10 cc. of a 30 per cent solution of sodium thiosulphate, followed by an intravenous injection of 1 cc. of 1:1,000 solution of epinephrine, is an antidote in cases of potassium cyanide poisoning. Sometimes a second intravenous injection of 20 cc. of the same solution of sodium thiosulphate is necessary. In emergency cases when the intravenous route is not available because the veins cannot be penetrated, such as happens in children, in obese women and in patients with hypotension, the intracardiac injection of 15 cc. of a 10 per cent solution of sodium thiosulphate and 1 cc. of a 1:1,000 solution of epinephrine followed by a subcutaneous injection of 10 cc. of a 25 per cent solution of camphor in oil gives good results in adults. Children are treated by means of an intracardiac injection of 3 cc. of a 30 per cent solution of sodium thiosulphate and 0.5 cc. of 1:1,000 solution of epinephrine, followed by a subcutaneous injection of 2 cc. of a 10 per cent solution of camphor in oil. In both cases (when the treatment is given by the intravenous route and when it is given by the intracardiac route) the patients should be given injections of cardiac tonics, such as caffeine and sparteine, at the regular dose. Artificial respiration is indicated in certain grave cases. As soon as possible, lavage of the stomach should be done. Four cases are reported.

Beiträge zur klinischen Chirurgie, Berlin

154: 315-474 (Jan. 27) 1932

New Rules for General Operative Measures: Preparation of Hands, Neo-Antisepticism and Safeguarding of Course of Surgery. P. Strassmann.—p. 315.
*Occurrence of Gas Gangrene Infection and of Pathogenic Agents of Gas Gangrene in Large Cities, Particularly in Berlin. F. Gerlach. —p. 343.
After-Examinations Following Resection of Stomach in Patients with Ulcer. C. M. Behrend.—p. 363.
*Clinical and Experimental Observations on Significance and Pathogenesis of Dropsy of Biliary Passages or of So-Called White Bile. F. Bernhard.—p. 389.
Experimental Investigations on Bacteriologic Conditions in Duodenal Ileus. H. W. Roth, P. Seulberger and K. Brandes.—p. 426.

Gas Gangrene Infection in Large Cities.—According to Gerlach, gas gangrene infection is not, as was formerly believed, a rare condition, for it occurs not only in rural districts but also in large cities. In the course of six years he observed twelve cases of the severest gas gangrene. After giving an historical review of the studies on gas gangrene he discusses the bacteriologic aspects, the pathologic anatomy, and the influence of meteorological conditions on the development of gas gangrene infection, especially during the Great War, and then gives the clinical histories of the twelve patients. Since nearly all these cases developed following accidents in the streets of Berlin, he reasons that the source of infection must be found in the dirt of the streets. Accordingly the dust of the Berlin streets was examined for the presence of gas gangrene bacilli, and in nearly all cases Fraenkel's gas gangrene bacilli were found. From this fact the author concludes that in the treatment of large accidental wounds, especially in complicated fractures and tearing of muscles, the possibility of a gas gangrene should be taken into consideration. The primary closure of such wounds, even in case of extensive wound excision, is not advisable because of the danger of gas gangrene infection.

Pathogenesis of Dropsy of Biliary Passages or of So-Called White Bile.—Bernhard calls attention to the fact that in complete closure of the choledochus the biliary passages do not always contain inspissated bile. On the contrary, the biliary passages are filled with a light fluid. This condition has been designated as dropsy of the biliary passages or as white bile. On the basis of successful experiments to produce dropsy of the biliary passages in animals and on the basis of clinical observation either made by himself or reported in the literature, the author shows that in most cases this condition is produced by an infection of the blocked bile; for, after infection has taken place, a large number of leukocytes invade the bile passages, and they later discolor the bile, which, as a result, gradually becomes whitish. In the majority of cases of dropsy of the biliary passages, icterus exists. In cases in which it is absent, the obstruction is usually caused by a calculus. Until recent years it was believed that dropsy of the biliary passages developed only in cases in which the choledochus was obstructed by a tumor, but it is now recognized that it may be caused by calculi. The author found calculi in sixteen out of twenty-five cases, which indicates that calculi are the main cause. For the treatment he therefore concludes that instead of resorting to anastomosis as a matter of course, as was done formerly, the type of obstruction that is causing the dropsy of the biliary passages should first be determined. If it is caused by a tumor, anastomosis is justified; but if calculi are present, the rules for surgery of the biliary passages should be followed.

Deutsche medizinische Wochenschrift, Leipzig

58: 241-282 (Feb. 12) 1932. Partial Index

Fate of Patients with Diabetes Mellitus. F. Umber.—p. 241.
*Sensitization of Skin Following Wound Treatment. F. Blumenthal and Käte Jaffé.—p. 246.
*Treatment of Ulcer of Leg. P. Meissner.—p. 248.
Striatal Syndrome in Dysentery. L. Karczag.—p. 249.
Experiences with Citochol Reaction of Sachs-Witebsky. A. J. Weil and E. Barth.—p. 250.
Complement Fixation for Tuberculosis. F. O. Höring.—p. 251.
Spontaneous Pneumothorax Simulating Perforated Gastric Ulcer. M. Siebner.—p. 252.
Trocar with Adjustable Guard. von Lebinski.—p. 253.

Sensitization of Skin Following Wound Treatment.—Blumenthal and Jaffé noted that in cases of ulcers of the leg and of other ulcerations that are treated with iodoform or other substances the entire skin may develop a predisposition to eczema. This acquired sensitization has the effect that if after years the person comes again in contact with the formerly used medicaments, on any part of the skin, an eczema develops. The sensitization from wound surfaces also indicates that a predisposition to eczema may follow an accidental injury.

Treatment of Ulcer of Leg.—Meissner reports the results that he obtained with Nussbaum's method, which in recent years has been almost entirely forgotten. Nussbaum advised encircling the ulcer with an incision from 2 to 3 cm. away from the edge of the ulceration. The incision goes through the skin and through the subcutaneous connective tissue down to the muscular fascia. In this manner the tension of the tissues is relieved, and how great this tension was is proved by the fact that the edges of the incision draw wide apart, and the ulcerating surface becomes smaller. However, the author is convinced that this mechanical action is not the only factor in the therapeutic action of this method. He thinks that the great emphasis formerly put on the mechanical origin of ulcers of the leg and on their relation to varicose disorders is no longer justified. He considers certain aspects, especially the neuralgia-like attacks of pain, as vascular pains that originate in the sympathetic innervation of the vessels, and he ascribes the efficacy of Nussbaum's encircling incision partly to the fact

that it divides the sympathetic fibers in the diseased area. He recommends Nussbaum's encircling incision as an effective therapeutic method for old ulcers of the leg.

Medizinische Klinik, Berlin

28: 247-282 (Feb. 19) 1932. Partial Index

Indications for Surgical Treatment in Obstruction of Bile Duct. E. Melchoir.—p. 247.
*Attempt to Influence Calcium Metabolism by Roentgen Irradiation of Parathyroids. A. Biedl.—p. 251.
Pathologic Electrocardiogram in Normal Heart Action. G. Brückner. —p. 257.
Value of Coagulation Reaction (Weltmann) in Obstetrics and Gynecology. E. Klaften.—p. 258.
Pernicious Anemia and Pulmonary Tuberculosis. N. Levin.—p. 261.
Behavior of Blood Gases in Polycythemia. O. Klein and W. Nonnenbruch.—p. 264.

Attempt to Influence Calcium Metabolism by Roentgen Irradiation of Parathyroids.—Biedl reports the clinical history of a girl, aged 19, with osteitis fibrosa of the left hip joint. Since palpation of the parathyroids did not reveal the presence of an adenoma, the author hesitated to resort to a surgical intervention on them, although the increased calcium content of the blood indicated their hyperfunction. Instead he resorted to roentgen irradiation as the nonsurgical method of exclusion. He describes the technic of the treatment, which was given in three series, and states that the effect was entirely satisfactory. The calcium content of the blood decreased and the function of the left hip joint improved to such an extent that the patient was again able to do her work. On the basis of the effects obtained with intensive roentgen irradiation in the reported case, the author recommends this treatment for cases of osteitis fibrosa, whether localized or generalized, no matter whether a tumor of the parathyroids is demonstrable or whether its presence is indicated only by an increased calcium content of the blood.

Münchener medizinische Wochenschrift, Munich

79: 293-334 (Feb. 19) 1932

Studies on Physiologic Action of the Foehn. W. S. van Leeuwen.—p. 293.
*Eosinophilia in Lymphogranulomatosis. K. Holzknecht.—p. 295.
Treatment of Extended Caverns of Upper Lobe. H. Thomsen.—p. 296.
Hyperacusis. E. Leschke.—p. 298.
Inflammation. M. Borst.—p. 298.
Gas Anesthesia. H. Widenhorn.—p. 301.
Development of Physical-Dietetic Therapy of Pulmonary Tuberculosis. A. Bacmeister.—p. 305.
Method of Reticulocyte Count. H. Kämmerer.—p. 308.
Prevention of Typical Hospital Odors. F. Caesar.—p. 309.

Eosinophilia in Lymphogranulomatosis.—On the basis of the clinical observations in two cases of lymphogranulomatosis, Holzknecht describes the occurrence of an abnormally high eosinophilia (up to 25 or 34.5 per cent, respectively). This symptom, if found, is an important diagnostic aid, especially in cases in which only those lymph nodes are involved that are situated deep in the abdominal cavity and in which, therefore, an exact demonstration of the disorder by histologic examination is not possible. In both cases the disease was rapidly progressive, and in both roentgen therapy effected a considerable improvement.

Zentralblatt für Chirurgie, Leipzig

59: 385-448 (Feb. 13) 1932

Extensive Operation of Cancer of Rectum by Sacral Route. F. Mandl. —p. 394.
*Rapid Emergency Method for Excision of Cancer of Rectum. G. Kelling.—p. 403.
*Demonstrability of Meniscus of Knee Joint in Roentgenogram. H. Hilgenreiner.—p. 405.
Action of "Avertin" in Abolition of Renal Function. H. Jacobi. —p. 408.
Acromioclavicular Dislocation. H. Kment.—p. 410.
Insertion of Rubber Tubing as Means of Bridging Defect in Wirsung's Duct Resulting from Surgical Intervention. F. Smoler.—p. 413.
So-Called Biliary Peritonitis Without Perforation. W. Mintz.—p. 415.
Tibial Amputation Stump Supporting Body Weight. T. Remmets. —p. 416.
Dangerous Hemorrhage from Corpus Luteum Following Cholecystectomy. E. Groszwirth.—p. 417.

Emergency Method for Excision of Cancer of Rectum.—The method described by Kelling is the exclusion of the pelvic colon and of the sigmoid flexure and the formation of a double abdominal anus, instead of pulling the intestine down toward the normal anus or toward the sacral anus. This method is advisable in cases in which the general condition and certain local aspects make it advisable to employ a less dangerous and a more rapid surgical method. The author mentions several conditions that make the employment of his method advisable, such as adhesions, profuse hemorrhages, narrow pelvis, especially in men, and gangrene of the intestine, which in other surgical methods makes it necessary to bring downward always larger portions of the intestine. It should also be considered that in cases in which the cancer has spread to surrounding tissues the danger of relapse is great and for such cases the author's procedure is advantageous because the abdominal anus takes the intestine away from the endangered regions. In estimating the general condition one should consider whether the patient is weakened and exsanguinated, and whether the danger of infection is greater on account of existing diabetes. The author gives three case reports and in the conclusion he states that the abdominal anus may eventually be closed. Of course, the method is only an emergency procedure, but it may nevertheless prove advantageous in certain cases.

Demonstrability of Meniscus of Knee Joint in Roentgeonogram.—Hilgenreiner shows that the meniscus of the knee joint becomes demonstrable only a considerable time after a severe injury, since the circulatory disturbance that is caused by the injury leads to calcification of the interarticular cartilage, so that it finally becomes visible in the roentgenogram. The great rarity of this roentgenologic demonstration is probably due to the fact that the injured meniscus is usually detected early and treated at least too early for the development of a calcification, or the delicate shadow of the meniscus is overlooked, or if a hard tube is employed it may not be visible.

Zentralblatt für Gynäkologie, Leipzig

56: 385-448 (Feb. 13) 1932

*Value of Determination of Diastase Content of Urine for Early Diagnosis of Pregnancy. S. Ussolzew.—p. 386.
Clinical Evaluation of Determination of Quantity of Hypophyseal Hormone in Blood. H. O. Neumann and F. Peter.—p. 391.
Physiologic Action of Folliculin on Pregnant Uterus. W. K. Tschaikowsky.—p. 395.
Therapy of Eclampsism and Eclampsia. Gertrud Mugel.—p. 397.
Primary Abdominal Pregnancy. R. Hasselblatt.—p. 404.
Etiology of Conglutination of External Orifice of Uterus: Importance as Obstacle to Delivery. H. Kraatz.—p. 409.
Unusual Sequel of Delivery of Child Through Central Cervical Rupture. K. Oppenheimer.—p. 414.
Artificial Construction of Vagina According to Wagner-Kirschner by Means of Krause's Skin Flaps. K. Warnecke.—p. 416.

Diastase Content of Urine in Early Diagnosis of Pregnancy.—Following an evaluation of the various pregnancy reactions, Ussolzew reports his experiences with von Pall's method according to which the diastase content of the urine gives indications for an existing pregnancy. A description of the technic of the test indicates that the diastase content of the urine is determined by means of a starch solution that has been subjected to the buffer action of phosphates. The author performed this test on women during the various stages of pregnancy. A tabular report shows the results that were obtained in fifty-four pregnant women. In all but one case the diastase values were normal, and in this instance the increase disappeared again within a few days, which proves that the gravidity was not the cause of it. Thus the author's tests prove that during pregnancy there is no increase in the diastase content of the urine and that the diastase reaction is therefore not suitable for the diagnosis of pregnancy.

Polska Gazeta Lekarska, Lwów

11: 137-156 (Feb. 21) 1932

*Etiology of Pemphigus and Duhring's Disease. R. Bernhardt.—p. 137.
*Reticulocytes as Clinical Problem. J. Itelson and M. Kocen.—p. 138.
*Practical Value of Izraelson's Reaction. T. Chorążak.—p. 142.
*Müller's Simplified Flocculation Test. L. Hessel.—p. 144.
Secretion of Dyes by Gastric Mucosa. G. Fiałkowski.—p. 145.

Etiology of Pemphigus and Dermatitis Herpetiformis Duhring-Brocq.—Numerous cultures obtained not only from the blood but also from the fresh exudates, in three cases of dermatitis herpetiformis and in two cases of pemphigus, were found negative by Bernhardt. The young rabbits used in the research survived after intravenous or hypodermic injections either with blood serum of the patients or with serums from clear exudates. Local lesions were not observed on the experi-

mental animals. The author found a variety of bacterial flora, but only in older bullae of more than twenty-four hours' duration, in patients who apparently neglected the treatment. In conclusion the author confirmed the inference announced previously by Urbach and Reiss; namely, that using the present-day methods of experimentation one cannot determine whether the two diseases in question are of toxic or infectious origin.

Rôle of Reticulocytes.—The normal number of reticulocytes, according to Itelson and Kocen, is not over 5 or 6 in 1,000 red blood cells. Reticulosis is an index as to the regenerative functions of the bone marrow. Whenever the bone marrow is more active, the number of reticulocytes increases. The authors tabulated their observations as follows: reticulocytes—in pernicious anemia; in secondary anemia and other diseases of the hematopoietic system; in struma simplex; in hyperthyroidosis; in diabetes mellitus and other diseases of the glands of internal secretion; in other diseases (aortitis syphilitica, phthisis). Their conclusions: 1. In pernicious anemia, reticulocytes may serve as a sensitive indicator as to the results of treatment; quantitative increase of reticulocytes manifests itself considerably earlier than that of either hemoglobin or red blood cells. With restitution of the hematopoietic organs to normal functions, the number of reticulocytes becomes normal. Hyperactivity of the bone marrow or polyglobulism, attained by constant stimulation with liver extracts, is accompanied by reticulosis. 2. A small number of reticulocytes in secondary anemia points to an advanced exhaustion of the bone marrow. 3. In greatly disturbed balance of the hematopoietic organs (icterus hemolyticus), the number of reticulocytes is continuously high regardless of the stage of disease. 4. During the course of roentgen treatments in leukemias, the blood counts for reticulocytes are indicative as to the response of the hematopoietic organs to the roentgen rays; considerable diminution even in hemoglobin and red blood cells, with decrease in the number of leukocytes, does not point to untoward effects of the roentgen rays, provided the number of reticulocytes, at the same time, is large. 5. In diseases of the thyroid the rôle of reticulocytes is of great diagnostic value; thyrotoxicosis, even mild, shows an increased number of reticulocytes; this increase, however, does not run parallel with the extent of the condition and has no prognostic value. 6. Other diseases of the glands of internal secretion, particularly the severe types of diabetes mellitus of children, are accompanied by reticulosis.

Practical Value of Izraelson's Reaction.—Chorążak tried out the reagent announced by Izraelson as simple for testing suspected serums for syphilis. The reagent consists essentially of one part of alcoholic extract of dried brain of rabbit, guinea-pig or beef, nine parts of physiologic solution of sodium chloride and one or two drops of a 0.2 per cent solution of fuchsin for each cubic centimeter of the reagent. The test: To one drop of the suspected serum, placed on a microscopic slide, one drop of reagent is added and mixed with the aid of a glass rod. A reading is made in from fifteen to thirty minutes. The mixtures that evaporate completely are discarded as meaningless. In positive reaction there are rosy, flaky shreds in transparent fluid. In negative reactions the appearance is uniformly rosy. In weakly positive reactions, the flocculent particles are very small but are plainly visible under the magnifying lens. The author made 366 tests with Izraelson's reagent, using the Sachs-Georgi and Wassermann reactions as controlling methods in every test. He summarizes the results as follows: 1. Izraelson's reagent appears to be more sensitive than Wassermann's and Sachs-Georgi's in primary, seronegative syphilis, in latent syphilis, and in neurosyphilis; it appears less sensitive in other stages of syphilis. 2. On account of the high percentage of positive reactions with serums of normal, healthy persons, the specificity of Izraelson's reagent is doubtful. 3. In view of the foregoing facts, one cannot rely on Izraelson's reagent alone; it may, however, be of service as control besides the other reagents now in general use.

Müller's Simplified Flocculation Test.—Hessel performed 300 tests for syphilis, using Müller's simplified reagent. He tested 180 serums and 120 spinal fluids. The Wassermann reaction served as a control. While his report is preliminary, it is in agreement with the opinions of other investigators, namely, that the reagent is highly specific and sensitive, and also convenient for clinical and private practice, because no special equipment is needed for the relatively quick diagnostic test. The time for reading is three and twenty-four hours for serums and spinal fluids, respectively.

Bibliotek for Læger, Copenhagen

123: 491-526 (Nov.) 1931

*Localization of Cutaneous Disorders. H. Haxthausen.—p. 491.

Localization of Cutaneous Disorders.—Haxthausen discusses the dependence of the localization of the various eruptions not only on conditions in the skin itself but also on the relation existing between the skin and the rest of the organism.

Hospitalstidende, Copenhagen

75: 185-212 (Jan. 14) 1932

Tumor in Chiasm Region with Unilateral Choked Disk and Unilateral Atrophy of Optic Nerve: Brief Review of Pathogenesis of Choked Disk. E. Sørensen.—p. 185.
Effect of Rectal Anesthesia with "Avertin" on Blood Sugar. J. M. Wollesen.—p. 191.
*"Blood Types" (Subtypes): M, N and M N. J. Clausen.—p. 196.

"Blood Types" (Subtypes): M, N and M N.—Clausen's determinations of the "subtypes" in 1,485 persons (290 families with 577 children together with 335 other persons) fully confirm Landsteiner's conception of the M and N genes as allelomorphic and belonging to another system than the genes of the "main types." Comparative examinations in adults, newborn infants and fetuses show that even in fetal life M and N receptors closely approach the maximal development, and a more marked development of the receptors is seen in the homozygote types than in the heterozygote type.

Norsk Magasin for Lægevidenskapen, Oslo

93: 113-224 (Feb.) 1932

Attempt at Theoretical Orientation in Psychopathology of Schizophrenias and in Etiologic and Pathogenic Possibilities. O. Lingjærde.—p. 113.
*Massive Abdominal Tumor. A. Arnesen.—p. 149.
Operative Treatment of Fractures. A. Brekke.—p. 152.
*Radium Treatment of Actinomycosis of Face and Neck. R. B. Engelstad.—p. 161.
Combating Influenzal Hospital Infections by Help of Anticatarrh Vaccine. L. Stoltenberg.—p. 175.
*Result of Eight Years' Insulin Treatment of Diabetes Mellitus in Children. K. U. Toverud.—p. 186.
Roentgen Treatment of Cancer According to Coutard's Method. J. Frimann-Dahl.—p. 195.

Massive Abdominal Tumor.—The tumor in Arnesen's first case was of preperitoneal development with extremely broad base, weighed 20 Kg. (44 pounds) and consisted of a lobular lipoma varying in the different lobes from soft to firm, almost fibrous, consistency. Recovery was uneventful. Two other cases of massive tumor are cited.

Radium Treatment of Actinomycosis of Face and Neck.—Engelstad reports that complete recovery resulted in twenty-five out of twenty-eight cases of cervicofacial actinomycosis from 1925 to 1931 with radium treatment. One patient died from meningitis due to Staphylococcus albus, one is still under treatment and one has been lost sight of. The cosmetic results were good. The usual dose was from 33 to 35 mg. of radium element, preferably with a filter of 2 mm. of lead, for forty-eight hours. The number of treatments varied greatly. Earlier incisions apparently retarded development.

Insulin Treatment of Diabetes Mellitus in Children.—Toverud reports that of forty-seven children with diabetes mellitus observed from 1923 to 1926, seventeen, or 36 per cent, were dead in 1927. Of the remaining thirty, seven, or 23 per cent, died during the next four-year period. In the fatal cases, either insulin treatment was omitted or carried out with great irregularity, or there was an acute infection without adequate treatment of the diabetes. She says that the social conditions on which the medical control in the individual case depends are in Norway more unfavorable than in many countries because of the economic situation and the widely scattered settlement in the rural districts, making access to the physician difficult.

Ugeskrift for Læger, Copenhagen

94: 167-186 (Feb. 18) 1932

Exanthem Subitum. C. Friderichsen.—p. 167.
Traumatic Paralytic Ileus. K. M. Andersen.—p. 173.
Mortality from 1925 to 1930 in Young Children Under Supervision of City of Copenhagen. P. Hertz.—p. 175.